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THE BOSTON
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The Massachusetts Medical Society

PROGRAM OF THE ONE HUNDRED AND FORTY-FOURTH ANNIVERSARY TUESDAY, JUNE 9, AND WEDNESDAY, JUNE 10, 1925

GENERAL INFORMATION

THE entire program, except the Cotting Lunch and the Annual Dinner, will be given in the hall on the fourth floor of the building of the John Hancock Mutual Life Insurance Company, No. 197 Clarendon Street, between St. James Avenue and Stuart Street.

The following hotels, within a few minutes' walk of the John Hancock building, have quoted these rates:

	Single Rooms	Double Rooms
Copley-Plaza	$5.00-$8.00	$8.00-$12.00
Brunswick	3.00- 6.00	4.00- 8.00
Lenox	3.00- 6.00	4.00- 8.00
Copley Square	2.50- 3.00	3.50- 4.00

There are many good lunch rooms in the immediate vicinity.

Ample parking space for automobiles is available close to the building.

The Committee of Arrangements will maintain a desk in the corridor, just outside the door of the hall in the John Hancock Building, for information, registration, the sale of dinner tickets and for telephone calls.

All Fellows are requested to register and to purchase their dinner tickets at the earliest opportunity.

An attempt will be made to start all of the events on the program promptly on time.

HOSPITAL ACTIVITIES

The Peter Bent Brigham Hospital—Tuesday: Medical ward rounds (Dr. H. A. Christian) from 10 a. m. to 12 m. X-ray clinical conference from 12.15 to 1.15 p. m. Surgical clinics and operations from 9 a. m. to 1 p. m, Wednesday: Medical ward rounds (Dr. C. Frothingham) from 10 a. m. to 12 m. Surgical clinics and operations from 9 a. m. to 1 p. m.

The Massachusetts General Hospital welcomes the *Fellows of the Society* to visit the hospital and its clinics on Tuesday and Wednesday. An interesting program in the Surgical Amphitheater is assured.

The Boston City Hospital welcomes the *Fellows of the Society* to visit the hospital and its clinics on Tuesday and Wednesday. On Tuesday at 9 a. m. there will be surgical exercises in the Surgical Amphitheater and medical exercises in the Amphitheater of the new Thorndike Memorial.

The Boston Lying-In Hospital will be open to inspection on Tuesday afternoon. At 3 p. m. there will be a round table conference, at which papers will be read by Dr. Donald Macomber and Dr. Foster S. Kellogg for the Section of Obstetrics and Gynecology.

TUESDAY MORNING, JUNE 9, 1925, 10-11.15 A. M.

Program of the Section of Pediatrics. Dr. E. F. Curry, Fall River, Chairman; Dr. J. Herbert Young, Newton, Secretary.

1. *The Treatment of Scarlet Fever with Antitoxin*
   By Dr. Francis G. Blake, New Haven, Connecticut. Professor of Medicine, Yale University School of Medicine.
   Discussion opened by Dr. Edwin H. Place, Boston.
2. *The Cause of Uremia in Acute Nephritis in Children.*
   By Dr. Kenneth D. Blackfan, Boston. Professor of Pediatrics, Harvard Medical School.
   Discussion opened by Dr. John Lovett Morse, Boston.

11.15 A. M. ANNUAL MEETING OF THE SUPERVISING CENSORS

11.45 A. M. ANNUAL MEETING OF THE COUNCIL

The meeting of the Council will be followed by the Cotting Lunch in the State Suite of the Copley-Plaza Hotel, entrance on Trinity Place.

TUESDAY AFTERNOON, JUNE 9, 1925, 2.00-3.00 P. M.

Program by the Section of Tuberculosis. Dr. Henry Colt, Pittsfield, Chairman; Dr. P. J. Sullivan, Dalton, Secretary.

1. *The Diagnosis and Treatment of Juvenile Tuberculosis.*

By Dr. Cole B. Gibson, Meriden, Connecticut. Superintendent Meriden State Tuberculosis Sanatorium.

3.00-5.00 P. M.

General papers. Dr. E. H. Bigelow, President, Chairman.

1. *The Nursing Problem.*
   By Dr. Alfred Worcester, Waltham.
2. *Fractures.*
   By Dr. Philip D. Wilson, Boston.
3. *The Reduction of the Death Rate from Diabetes, particularly from Diabetic Coma, in Massachusetts.*
   By Dr. Elliott P. Joslin, Boston.

TUESDAY EVENING, JUNE 9, 1925, 8.00 P. M.

The SHATTUCK LECTURE. By Dr. Hans Zinsser, Boston, Professor of Bacteriology and Immunology in Harvard Medical School.
Subject: *"The Study of Immunity in its Relations to the Problems of Practical Medicine."*
A short program of moving pictures will follow the lecture.

WEDNESDAY MORNING, JUNE 10, 1925, 9.15-10.30 A. M.

Program by the Section of Surgery. Dr. Ernest L. Hunt, Worcester, Chairman; Dr. Ralph W. French, Fall River, Secretary.

1. *Procidentia Uteri.*
   By Dr. John M. Birnie, Springfield.
   Discussion opened by Dr. Royal P. Watkins, Worcester, and Dr. N. R. Mason, Boston.
2. *Major Urological Operations under Regional Anesthesia.* Moving Picture and Animated Film Demonstrations.
   By Dr. Oswald S. Lowsley, New York City.
   Discussion opened by Dr. William C. Quinby, Boston, and Dr. James A. Seaman, Springfield.

10.30-11.45 A. M.

Program by the Section of Medicine. Dr. Charles A. Pratt, New Bedford, Chairman; Dr. Henry Jackson, Jr., Chestnut Hill, Secretary.

1. *The New England Heart Association.*
   By Dr. Henry Jackson, Boston.
2. *The Use of Drugs in Heart Disease.*
   By Dr. Paul Dudley White, Boston.

11.45 A. M.-12.15 NOON

ANNUAL MEETING OF THE SOCIETY

BUSINESS OF THE ANNUAL MEETING

The following amendment to the By-Laws, as amended and approved by the Council, June 6, 1924, will be acted on: Rescind Section 8 of Chapter I, and substitute the following:

Section 8. (a) Resident fellows who have neglected payment of three annual assessments, and who continue to neglect payment after notification by the treasurer, may be deprived of the privileges of fellowship by the council acting on a report of the committee on membership and finance. (b) Non-resident fellows who have neglected payment of one annual assessment, after removal from the state, may be deprived of the privileges of fellowship in the same manner. (c) Fellows who have been convicted in a court of law of a crime or misdemeanor involving moral turpitude may be deprived of the privileges of fellowship by the council acting on separate reports of the committee on ethics and discipline and the committee on membership and finance, presented by the latter committee. A fellow so deprived shall have the privilege of a hearing by the joint committee if he desires. Fellows who have been deprived of the privileges of fellowship, on making application in writing to the council to be restored to said privileges, shall receive the consideration of the council. Such petitions should be addressed to the council and sent to the secretary of the general society.

12.15 NOON

THE ANNUAL DISCOURSE. By Dr. David Cheever, Boston.
Subject: *"The Physician as Custodian of the Health of the People, But Who Shall Guard the Custodian Himself?"*

WEDNESDAY AFTERNOON, JUNE 10, 1925, 2.15-3.30 P. M.

Program by the Section of Obstetrics and Gynecology. Dr. Charles E. Mongan, Somerville, Chairman; Dr. Frederick C. Irving, Boston, Secretary.

1. *The Care of Pregnancy.*
   By Dr. William C. Danforth, Evanston, Illinois. Associate Professor of Gynecology, Northwestern University Medical School.
   Discussion opened by Dr. Thomas Almy, Fall River; Dr. Edward R. Fleming, Medford Hillside; and Dr. Frederick L. Good, Boston.

3.30-5.00 P. M.

General papers. Dr. E. H. Bigelow, President, Chairman.

1. *Psychotherapy.*
   By Dr. C. Macfie Campbell, Boston.
2. *X-ray Therapy.*
   By Dr. Lawrie B. Morrison, Boston.

WEDNESDAY EVENING, JUNE 10, 1925

THE ANNUAL DINNER will be served in the Ballroom of the Copley-Plaza Hotel at 6.30 p. m. Tickets for the dinner will be on sale at the information desk in the corridor of the John Hancock Building throughout the meet-

ing to all Fellows who have paid their dues, at $2.00 each. Tickets for guests will be $4.00 each.

Tables will be set for groups of ten. Fellows desiring to sit together will please send their names in advance to the chairman of the Committee of Arrangements, Dr. Dwight O'Hara, and the proper reservations will be made.

Automobiles may be parked for the evening in the lot off Stuart Street, in the rear of the hotel.

Be sure to get your dinner tickets early.

ORIGINAL ARTICLES

THE PATHOLOGY OF EXOPHTHALMIC GOITRE

A Histological and Chemical Study of the Changes Following the Administration of Iodin (Lugol's Solution)

BY RICHARD B. CATTELL, BOSTON*

[From the Department of Surgery, Harvard Medical School and the Lahey Clinic, Deaconess Hospital.]

Since October, 1924, we have made a study of the change in the thyroid gland in exophthalmic goitre, as seen in its surgical removals, following the administration of Liquor Iodi Compositus, Lugol's solution. It is the object of this paper to present this change as we have observed it in patients having undergone one or more stages of surgical procedure.

PLATE I.
× 1000.
High columnar epithelium of hyperplastic gland, with little colloid. Iodin content 0.884 mg. per gram dried gland. Duration of exophthalmic goitre—1 year. Hemi-thyroidectomy 8 weeks before section taken.

HISTORY

Plummer's[1] introduction of the use of iodin in this condition has led to a considerable number of clinical studies of this effect. Previous to this time it had usually been considered not only contra-indicated but dangerous, although certain therapeutic accidents, with benefit, may be found in the literature. Marine[2] advocated its use in 1911, on the basis of its effect on any hyperplastic gland as observed in animal and human study. It was used in 17 cases without any bad effect. Neisser, in 1920[3], reported 8 typical cases using iodid of potassium and based his study on decrease in pulse rate, general improvement and gain in weight. Loewy and Zondek[4], the following year, confirmed this work in 12 cases; in addition they made metabolic studies in 3 and found a constant drop in the basal rate. Plummer and Boothby[5], following the former's original report, reported 600 cases observed in the Mayo Clinic; of the 43 studied more fully, 70-80% showed improvement. Subse-

PLATE II.
1. × 200. Papillary projections, no colloid, high columnar epithelium of very hyperplastic gland. Iodin content 0.279 mg.
2. × 100. Focus of lymphoid tissue, in gland with early involution. Iodin content 1.102 mg.

*This work was done under the direction of Dr. F. H. Lahey under the Tutorial System of the fourth year, Harvard Medical School. Supported by the Research Fund of the Lahey Clinic.

quently, there have been reports from several clinics[6], [7], [8], [9], [10], [11] using various iodin preparations and all finding a high incidence of benefit. A clinical report of the cases included in this paper will shortly be published[12]. The chemical and histological changes with like therapy have not been studied. A recent article by Jackson[13]

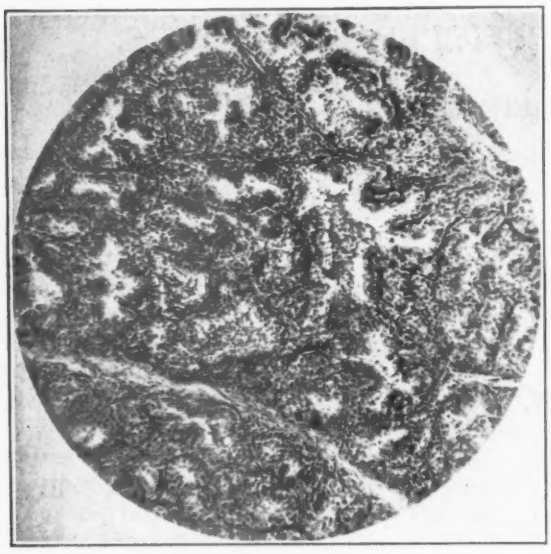


PLATE III.
× 100. Case 1.
Duration of exophthalmic goitre 2 years. High columnar epithelium, little colloid and papillary projections. No iodin therapy. Iodin content 0.474 mg. Very Hyperplastic.

brings up again the relation between the clinical severity and the pathology of this disease.

PATHOLOGY

Virchow, Kocher, and others believed that there is no constant pathology in exophthalmic goitre, while opposed to this view is that of Hamig and others that the pathology is constant and specific. In the cases we have studied there has been a great variation in the histological sections seen in patients with approximately the same clinical picture. In a consideration of a large group of sections from patients treated at the Deaconess Hospital, when only every fifth case was given iodin, it seems probable that although there is no constant relation, the great difference as reported by various observers lies in such morphological changes as would follow various therapeutic procedures.

Macroscopically the hyperplastic gland is a grayish-red color, firm in consistency, and regular in outline. It is enclosed in a thin, transparent connective tissue structure, but has not a true capsule within its fascial sheath. The blood vessels are large on the surface. On cut section, it shows a fine lobulation and a granular appearance, is usually uniform throughout, and if very hyperplastic no vesicles can be seen. A thin section is not translucent if held before a light.

Microscopically there is a change in all elements of a hyperplastic nature. A typical section is seen in Plates I and III. *Vesicle*: (a) the epithelium, by hypertrophy, changes from flat or low cuboid to high cuboid and columnar. The cytoplasm is greatly increased, while the nucleus remains in the basal portion. The mitochondria, by appropriate stain, are increased in proportion to cell growth[14]. The epithelial elements, if the process continues, increase in number and by this overgrowth papillary projections are formed (Plate II), making the vesicle irregular in outline and at times its lumen obliterated. The hyperplasia may be of a follicular nature—by the formation of numerous small vesicles, without as marked changes in the height of the epithelium; (b) the colloid decreases in amount until it is entirely absent in long standing cases (Plate III). Marine has shown the colloid to be inversely proportional to the hyperplasia. The colloid begins to disappear on the periphery of the gland or near blood vessels, and is first shown by vacuolization at the periphery of the vesicle; later by phagocytic action and by lighter staining reaction. *Stroma*: (a) the connective tissue and supporting tissue are increased; (b) lymphoid foci appear as a rule throughout the gland (Plate II); (c) the blood vessels and capillaries are increased in size and number.

PLATE IV.
× 120. Case 1.
Same patient as Plate III. Hemi-thyroidectomy and rest since other section. Iodin content 1.697 mg. Early Involution.

Degenerative changes are sometimes seen in long standing cases, but to a less extent than in other forms of thyroid disease. An exhaustion atrophy may result which will give the pathological appearance of a myxoedema. This will be evidenced by marked round cell infiltration and fibrosis of the stroma, with islets of hyperplastic secretory cells scattered throughout.

IODIN THERAPY

Following the use of iodin in all cases of exophthalmic goitre in this clinic, our attention was drawn early to certain glands which were peculiarly friable at operation, and on examination of thin fresh sections revealed a large amount of colloid material. Various degrees of this condition were noted, which we soon recognized as occurring in patients to whom iodin had been given over a considerable period of time. We had already begun a study of the quantitative iodin in various forms of thyroid disease with relation to the histological picture and this directed our attention to changes in the gland following iodin administration.

PLATE V.
× 120. Case 2.
Duration of symptoms—3 months. Epithelium high cuboid, considerable colloid. Iodex extract for short time. Bilateral superior pole ligation—1 month. Iodin content 2.349 mg. Moderate Involution.

10 drops t.i.d. of Lugol's solution (aqueous solution of 5% iodin and 10% potassium iodid) were given to these patients. The medication was begun either immediately after being seen in the clinic or on entry into the hospital. Patients are kept in bed and given iodin for a period of 8 days before operation. This seems to be the optimum time for clinical effect[12], or so-called "remission"[16]. A subtotal thyroidectomy is done if in the judgment of the surgeon this does not incur undue risk. In over 40 cases, subtotal hemi-thyroidectomies only have been done as a first stage procedure. In these cases, the same dosage of iodin is continued during a resting period at home of about 6-8 weeks, after which the other side is operated upon. A double dose to a few patients is given before operation. If the oral administration is impossible post-operatively, it is given rectally or subpectorally. A constant dosage in all cases is probably not advisable, but this was maintained as nearly as possible in this first series in order to obtain uniformity of conditions.

We have studied iodin elimination in the urine in 40 cases of exophthalmic goitre, under similar therapy, and by this means have come to the conclusion that the present dosage is too large. At present we are using a smaller dosage adjusted to the individual. A more rational therapy, as regards dosage of iodin, based on excretion, storage in the gland, and clinical improvement will be published in a subsequent report[17].

HISTOLOGY

A histological study was made of 168 surgical specimens removed from 125 of the thyroid patients operated upon in this clinic from October, 1924, to April, 1925. The clinical histories of these cases will be presented in a later clinical report[12], for in this pathological report, it is sufficient to state that the criteria taken for identification were an elevation of the basal metabolic rate, in addition to some of the common clinical findings of tremor, goitre, exophthalmos, tachycardia, nervous manifestations, and loss of weight.

The gross findings are more constant and only a summary of these will be given in a considera-

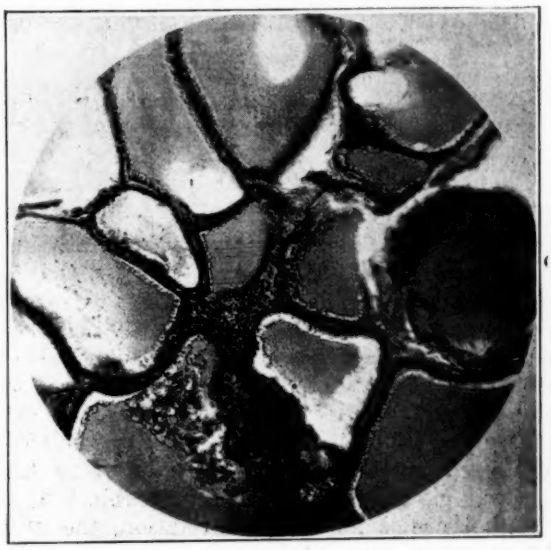


PLATE VI.
× 120. Case 2.
Low cuboid epithelium, increased colloid, normal stroma. Iodin given for 8 weeks, since last section. Iodin content 4.588 mg. Marked Involution.

tion of the involutional change.

The following outline was followed in an examination of the microscopic sections (see Table I):

From such an outline, the degree of hyperplasia or involution is estimated. Convenient groups can be designated, such as those used by Marine and Lenhart[18] and Wilson and Kendall[19]. For practical reasons we have used a

somewhat simpler classification of: very hyperplastic; hyperplastic; early, moderate, advanced, marked, and completely involuted groups. The basis of these is largely on the amount and distribution of colloid, height of epithelium, and shrinkage of the stroma. It is impractical to differentiate in a large series of sections whether the functioning gland is reacting in the direction of hyperplasia or involution at the time of removal of the specimen. There are, however, certain morphological evidences which indicate the reaction,—such as the staining reaction and distribution of the colloid, etc.,—but a greater aid is obtained in many cases from a survey of the clinical progress. It must of course be recognized that circumscribed areas of hyperplasia may be found even in a gland which shows marked involution; many sections are not uniform throughout, but it is necessary to pick the predominating structure.

All of the 168 sections showed some degree of parenchymatous hyperplasia. They are divided as follows (see Table II-a):

TABLE II-a

133 glands	Very Hyperplastic	16
	Hyperplastic	17
	Early Involution	29
	Moderate Involution	24
	Advanced Involution	19
	Marked Involution	18
	Complete Involution	10

Among these, 6 showed myxedematous or exhaustion atrophy; 6 showed coincident discrete adenomata, 3 of the fetal type. The remaining glands could not be classified according to the outline, but were divided thus:

TABLE II-b

35 glands	17	secondary hyperplasia of multiple colloid adenomatous goitre
	4	secondary hyperplasia of simple colloid glands
	8	secondary hyperplasia of discrete adenomata
	4	follicular hyperplasia
	2	beginning hyperplasia of normal gland

Papillary projections and lymphoid foci are two conspicuous features in the sections. In 146 examined for the presence of papillary projections, 104 showed it to some degree; 32 of those without it showed a marked involution; 6 showed a follicular hyperplasia; and 4 showed a beginning hyperplasia. This would show that papillary projections are a constant part of the disease and indicate only a hyperplastic process.

Lymphoid follicles were found in 92 specimens (82%) of 117 sections, but in 19 were few. 21 specimens (18%) had none, but with 2 exceptions were mild degrees of hyperplasia and about one-fourth of the group showed a hypertrophy rather than an increased number of secretory elements. 35 sections of a hyperplasia superimposed on multiple colloid adenomatous goitre were studied. 77% of these shows no lymphocytic infiltration. In one case where the hyperplasia was very marked, with an iodin content of but 0.279 mg. per gram of dried gland, there was no lymphatism. Two sections, at least, were examined in each case. 54 of the total 142 glands showed a diffuse infiltration of round cells, as well. This has been commonly called a condition of chronic inflammation, but it is very likely the beginning of follicle formation. This is indicated by groups of secretory cells found in the center of these follicles—the cells thus

TABLE I

No.	Name	Vesicle						Stroma					Remarks
		Colloid			Epithelium								Involution / Hyperplasia (Degree)
		Stain (a)	Distribution (b)	Amt.	Papillary Projections	Height of	Follicle Size and Number	Con. tis. (c)	Capsule (d)	Blood Vessels Size and Number	Lymphoid Tissue (e)	Degeneration, not post-mortem (f)	

(a) Depth and color of haematoxylin-eosin stained section. The colloid of endemic goitre and hyperplastic glands frequently retain more of blue color, while that of involuting glands, red.
(b) Uniformity throughout gland. Position in individual vesicles, near blood vessels and periphery of gland.
(c) Amount.
(d) Amount of condensation of thyroid tissue and thin connective tissue covering.
(e) Diffuse infiltration; follicle formation. Amount.
(f) Degeneration of stroma and exhaustion atrophy.

found show hyaline and degenerative changes, due to pressure atrophy.

INVOLUTION

The change in the thyroid gland seen after prolonged iodin administration.

Gross appearance: It is soft and usually smaller in size. The blood vessels are not conspicuous. A fresh section is moist and pale-brown in color. Vesicles, filled with colloid, can easily be made out. A thin section is very translucent and shows only slight supporting tissue.

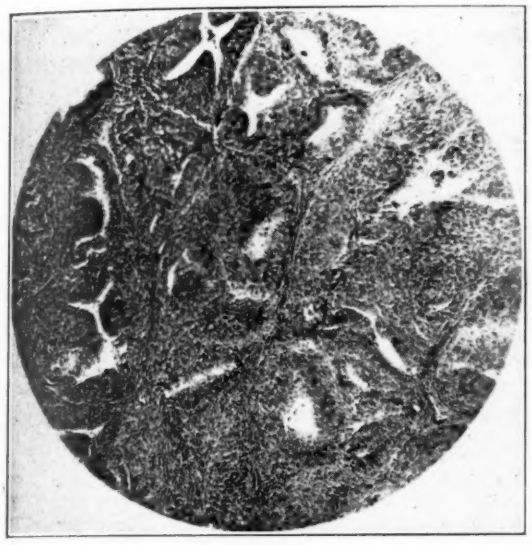


PLATE VII.
× 100. Case 3.
Duration of symptoms—1½ years. High columnar epithelium, no colloid, increased stroma. No iodin therapy. Very Hyperplastic.

Microscopically there is an anatomical regression of hyperplastic changes,—that is a return towards a normal or colloid resting state. There is a decrease and shrinkage of the stroma; a decrease in vascularity, chiefly by an endarteritis of the blood vessels; regression of the epithelium from columnar to cuboid or flat; loss of papillary projections together with an increased amount of colloid, usually to a greater degree than normal. Plates III-X show the various stages in this process (see legends).

The lymphocytic foci remain as well as numerous scars. The extent of the change depends on two factors: 1, the severity of the disease as evidenced by the anatomical picture; and 2, the amount and duration of iodin administration.

Chemically the change in iodin is roughly proportional to the involution.

CHEMISTRY

The normal iodin content, in any large series of human thyroids, is given by various workers[21, 23, 24, 25, 26, 27, 28] as ranging from 1.56-2.3 mg. per gram of dried gland with an average of approximately 2 mg.

An independent study of the quantitative iodin in our series of glands of exophthalmic goitre was made according to Kendall's method[2c]. The glands were preserved in 5% formalin, for a period from 1 to 8 weeks. Analyses on glands dried from the fresh state were made and, in comparison with those preserved, there was no greater difference than in the experimental error of the method. Analyses of 20 specimens of the preserving fluid following drying of the glands showed a small fraction of the total iodin from the gland in the fluid. Those of a hyperplastic gland showed blank tests, while those in cases where the iodin content of the gland was high and iodin had been given up to the day of operation, the content was usually but 1 or 2 mg. in the total preserving fluid. By removing all excess connective tissue and the exposed parts of the gland, any error was avoided. The glands were dried at 100 degrees C. and pulverized. Approximately 0.3 gm. samples were found to be most suitable except where there was a very low iodin content.

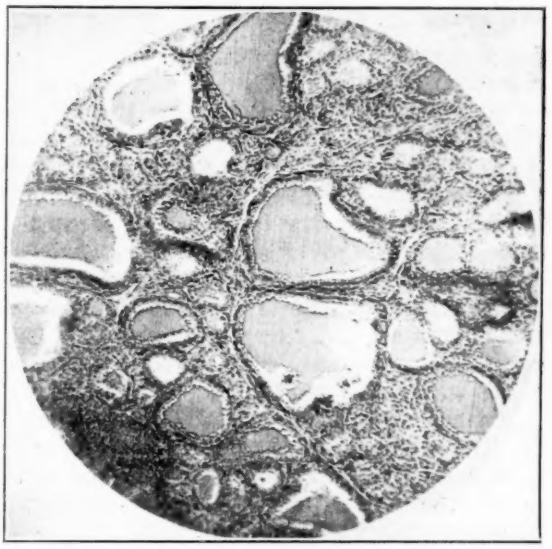


PLATE VIII.
× 100. Case 3.
High cuboid epithelium, colloid in many of the vesicles. Iodin therapy for 6 weeks. Iodin content 1.90 mg. Early Involution.

About 700 determinations have been made on these glands, the greater part have had two or more analyses, while some as high as eight. Controls were run at frequent intervals of solutions and known quantities of iodin determined. The following iodin contents were found for the various groups (see Table III):

The iodin contents for the higher groups are constantly higher than on any previous report, but this is to be expected since these are the only analyses made where large quantities of iodin had been given in human cases. From these figures one can see that there is no constant iodin content in the groups above moderate involution and when the iodin content is

above 3 mg. The values of the very hyperplastic and hyperplastic groups are similar to the previous analyses[18], [19]. As great a subdivision of the involutional groups according to the iodin content is not as satisfactory as according to the pathological histology. Although a wide range is seen in these involutional groups, the average for each shows a constant and appreciable increase over the preceding one, going from hyperplasia to involution. High and low values were 0.279 and 8.4 mg. per gram of dried gland. The probable reason for the great variation in the iodin contents of these glands is the feeding of large quantities of iodin up to the time of removal of the specimen, without sufficient time for the structural change to take place, if such was possible.

TABLE III

	No. Glands	Mg. iodin per gram dried gland: Average	High	Low
Very Hyperplastic	16	0.57	0.8	0.279
Hyperplastic	17	1.0	1.3	0.8
Early Involution	29	1.6	2.9	1.1
Moderate Involution	24	2.4	4.3	1.2
Advanced Involution	19	3.2	4.6	1.8
Marked Involution	18	4.7	7.9	3.0
Complete Involution	10	6.1	8.4	3.5

The percentage of dry to fresh weight varied greatly. This ranged from 13 to 28%. The lower values were found in glands in which marked involution had taken place, while the higher ones were in hyperplastic glands. This corresponds to the figures of Zunz[21], who found that the water, ash and salts (except those of iodin) varied directly with the size of the thyroid. The glands were found to increase from 5 to 20% in the preserving fluid, in the same ratio to the involution, the more involuted glands gaining most in weight.

CASE REPORTS

Since the use of iodin in preparation for operation, the number of operations in a given case has been materially reduced[12], [15], [22]. For this reason most of the sections reported were single specimens. A satisfactory pathological study of the iodin effect can only be made by observing the change in cases which have had more than one operation, the first previous to iodin therapy, together with other control procedures. We have studied 41 such cases in the past 5 months, which have both histological and chemical findings. These are listed in Table IV with the time and amount of iodin received before operation (30 drops daily unless otherwise stated), together with the basal metabolism at time of operation. The single isolated rate only serves to identify the disease, but does not express the change which took place as a result of the iodin.

There are many factors which make such a group difficult to control. The iodin is unpleasant to take, and we have known some to discontinue it at home for this reason. Again, when the improvement is noticed by the patient, it has been discontinued on the patient's own initiative. Since the wide use of iodin in exophthalmic goitre, most of the patients receive undeterminable quantities before they are seen by us.

A survey of these cases shows that in the 33 patients receiving iodin, only 4 did not show both an involutional change and increase in the iodin content, and of these only 2 became worse, pathologically.

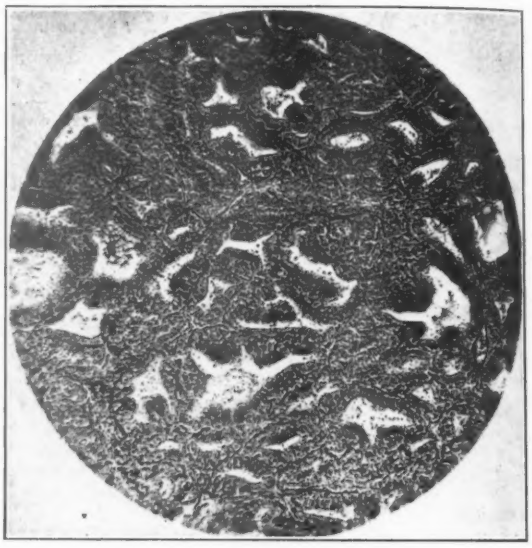


PLATE IX.
× 100. Case 4.
Duration of symptoms—2½ years. Thyro-cardiac. High columnar epithelium, no colloid, papillary projections, etc. No iodin therapy. Very Hyperplastic.

(a) 18 patients received iodin between operations and showed an appreciable change in the gland, (1) structurally towards involution, and (2) chemically with an increase in iodin.

(b) 15 patients received iodin before the first operation and the gland was the same or slightly worse on the second removal. Of these, 6 showed an extensive involution at the first examination. This would show the probability that the gland could not return more towards normal as each had received large quantities of iodin; 4 received no iodin after the first operation; 2 showed an increased hyperplasia in spite of an increase in iodin content; and 2 showed no effect.

(c) Of those not receiving iodin, 2 showed an increasing hyperplasia after hemi-thyroidectomy; 6 showed a slight increase in iodin content and slight involution after hemi-thyroidectomy and superior pole ligations.

A study of these cases and 168 glands leads us to believe that a large number (87.9%) of patients with exophthalmic goitre, receiving iodin

therapy, show a definite change in the gland with involution and increase in iodin content. The iodin content tends to be in direct proportion to this change, but there is a wide variation, due, we believe, to large amounts being stored in some glands without time for structural change and formation of "thyroid iodin."

Similar changes are seen following hemi-thyroidectomy and pole ligations and probably occur to some degree due to X-Ray treatment and rest. Clinical improvement and drop in basal rate have been observed with rest[12, 29, 30], but we have not studied this effect pathologically. Any effect of hemi-thyroidectomy would

TABLE IV

Case	B. M. plus	*First Operation* Histology	Chem.*	Therapy†	B. M.	*Second Operation* Histology	Chem.	Therapy‡
1	69	Early Invol.	1.3	1 pole 8 days before L—8 days	35	Mark. Invol.	7.9	L—8 wks.
2	85	Very Hyper.		L—0	83	Early Invol.	1.9	L—6 wks.
3	83	Mod. Invol.	1.8	L—8 days	60	Adv. Invol.	3.6	L—3 mos.
4	33	Adv. Invol.	4.5	Thyr. Tablets	33	Mark. Invol.	6.4	L—8 wks.
5	34	Early Invol.	2.9	L—9 days	33	Adv. Invol.	5.5	L—8 wks.
6	75	Mod. Invol.	—	Bilat. Pole Lig.—6 wks.	43	Adv. Invol.	3.4	L—8 wks.
7	76	Adv. Invol.	2.3	Lig.—2 mos. HI and Iodex Ext. ? amt.	22	Mark. Invol.	4.6	L—5 wks.
8	46	Hyperplastic	—	L—0	60	Mark. Invol.	3.0	L—8 wks.
9	49	Mod. Invol.	1.2	L—1 wk.	37	Adv. Invol.	2.0	L—2 wks.
10	97	Early Invol.	—	L—2½ wks.	53	Mod. Invol.	2.4	L—1 wk.
11	87	Very Hyper.	—	L—0	19	Early Invol.	—	L—1 wk.
12	82	Hyperplastic	—	L—0	—	Mark. Invol.	—	L—12 wks.
13	68	Mod. Invol.	—	L—1 wk.	37	Adv. Invol.	—	L—6 wks.
14	75	Hyperplastic	—	L—1 wk.	88	Mod. Invol.	—	L—6 wks.
15	11	Adv. Invol.	—	L—2 wks.	44	Compl. Invol.	4.2	L—? amt.
16	92	Mod. Invol.	—	L—1 wk.	77	Adv. Invol.	—	L—0
17	66	Adv. Invol.	—	? iodin prep. for 2 mos.	42	Mark. Invol.	—	L—8 wks.
18	72	Adv. Invol.	5.1	Lig.—2 mos. L—8 wks.	63	Adv. Invol.	4.4	L—2 days
19	68	Adv. Invol.	—	Lig. and X-ray L—8 wks.	54	Adv. Invol.	3.7	L—8 wks.
20	79	Compl. Invol.	7.7	Lig.—2 mos. Ultra - violet light—2 yrs. L—(gtts. XV) for 2 yrs.	56	Compl. Invol.	8.4	L—8 wks.
21	72	Compl. Invol.	8.0	X-ray 3 yrs. L—? amt.	33	Compl. Invol.	7.5	L—0
22	99	Very Hyper.	—	L—Small amt.	66	Very Hyper.	—	L—0
23	65	Hyperplastic	—	L—12 wks.	49	Hyperplastic	—	L—0
24	95	Mark. Invol.	—	Lig.—7 wks. NaI—? amt.	90	Mark. Invol.	7.2	L—0
25	50	Mark. Invol.	6.2	L—4 wks.	16	Mark. Invol.	—	L—0
26	33	Mod. Invol.	—	L—3 wks.	—	Mod. Invol.	—	L—0
27	51	Mark. Invol.	1.4	L—0	90	Mod. Invol.	3.2	L—1 mo. previous for 2 wks.
28	50	Hyperplastic	—	L—0	56	Very Hyper.	—	L—0
29	91	Mod. Invol.	—	L—4 wks.	73	Early Invol.	—	L—0
30	47	Mod. Invol.	—	L—2 wks.	16	Early Invol.	—	L—0
31	64	Mod. Invol.	—	L—1 wk.	37	Early Invol.	—	L—0
32	56	Adv. Invol.	1.8	Lig.—7 wks. L—5 wks.	42	Early Invol.	2.5	L—8 wks.
33	80	Early Invol.	—	Lig.—6 wks. L—0	56	Mod. Invol.	1.8	L—0
34	48	Very Hyper.	0.279	L—0	40	Mod. Invol.	1.5	L—0
35	—	Very Hyper.	—	L—0	—	Early Invol.	0.9	L—0
36	77	Very Hyper.	0.47	L—?	51	Early Invol.	1.7	L—2 days
37	51	Very Hyper.	0.55	L—0	43	Hyperplastic	0.88	L—0
38	101	Very Hyper.	—	L—0	54	Hyperplastic	0.9	L—0
39	58	Very Hyper.	—	Thyr. Tablets	35	Very Hyper.	0.55	L—0
40	70	Mod. Invol.	1.4	L—0	58	Mod. Invol.	1.7	L—0
41	56	Mark. Invol.	—	L—0	34	Mod. Invol.	2.8	L—0

*Iodin content in milligrams per gram of dried gland; these figures are given to but one decimal point.
†Lig.—Refers to ligation of both superior thyroid arteries unless stated otherwise.
L—Lugol's solution, time of administration before operation, gtts. xxx unless indicated.
‡All this group have had subtotal hemi-thyroidectomies, as well.

usually be considered in the direction of hyperplasia[31] but Marine[32] has shown this not to occur in dogs unless 4/5 is removed.

We believe iodin in some form to be necessary for these changes toward normal, whether the iodin is in the food, water, or received as medication.

The time for the maximum effect pathologically does not correspond to the clinical improvement noted usually after the first week. Although a large number with structural change due to iodin show clinical improvement, glands are not rare which show marked involution yet clinically the patient before operaton shows symptoms of great severity together with a high basal metabolic rate. More work is necessary to determine this point. We are at present studying the relation of clinical improvement with iodin to the pathology in such patients. The existence of glands which show a complete involution, in patients with a high basal metabolic rate and severe symptoms, suggests an extra-thyroid phase of exophthalmic goitre.

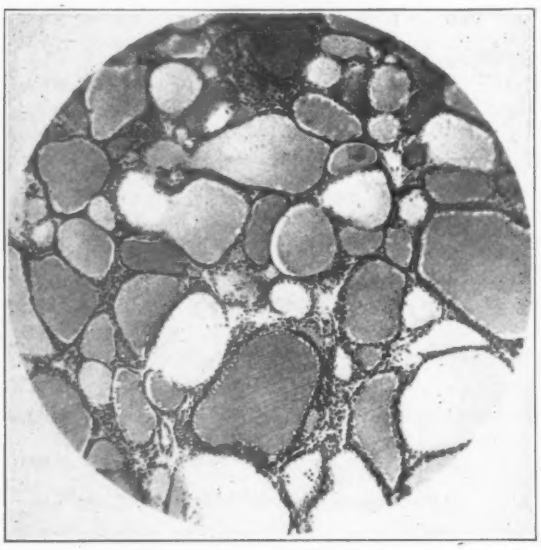


PLATE X.

× 100. Case 4.

Epithelium for the most part flat, some cuboid. Normal stroma. Iodin therapy for 8 weeks since last operation. Iodin content 3.044 mg. Complete Involution.

It seems likely that the clinical improvement can be explained by the structural and more especially chemical change after iodin, which allows the gland to reassume its normal secretory activity.

CONCLUSIONS

1. In 87.9% of patients with exophthalmic goitre, in our series, receiving iodin therapy, there is an involutional change in the thyroid gland. 6.7% showed an increasing hyperplasia.

2. There is an increase in the iodin content of all glands after iodin administration.

3. The iodin content is directly proportional to the involutional change, up to a certain point.

4. Similar changes follow superior pole ligations and hemi-thyroidectomy together with rest, but it is most marked after iodin alone.

5. The clinical improvement seen after iodin bears a relation to this structural and especially chemical change.

6. There is a group of patients who show marked involutional change and a high iodin content in their glands, yet still suffer from severe exophthalmic goitre.

7. The pathology of exophthalmic goitre is not constant; parenchymatous hyperplasia is seen superimposed on adenomata and endemic goitres.

8. Lymphoid infiltration occurs as the rule; it remains after involution to some degree.

It is with pleasure that I acknowledge the advice and encouragement of Dr. Frank H. Lahey and Dr. David Marine. Many of the analyses were done by Dr. B. A. Bartlett.

BIBLIOGRAPHY

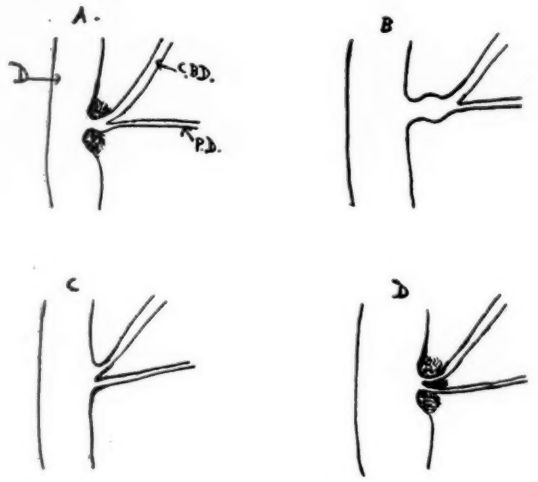
1 Plummer, H. S.: Results of Administration of Iodin to Patients Having Exophthalmic Goitre. J. A. M. A., 80: 1955:1923.
2 Marine, D., and Lenhart, C. H.: Pathological Anatomy of Exophthalmic Goitre; Treatment. Arch. Int. Med., 8: 313:1911.
3 Neisser, E.: Use of Iodin in Basedow's (translated). Berl. Klin. Wochenschr., 21:461:1920.
4 Loewy, A., and Zondek, H.: Basedow's and Iodin Therapy (translated). Deut. Med. Wochenschr., 47:1387:1921.
5 Plummer, H. S., and Boothby, W. M.: Value of Iodin in Exophthalmic Goitre. J. Iowa M. Soc., 14:66:1924.
6 Starr, P., Segal, H. M., and Meahs, J. H.: Effect of Iodin in Exophthalmic Goitre. Arch. Int. Med., 34:355:1924.
7 Mason, E. H.: Use of Lugol's Solution in Treatment of Exophthalmic Goitre. Canad. M. A. J., 14:219:1924.
8 Jagic, N., and Spengler, G.: Action of Iodin in Goitres. Wien. Klin. Wochenschr., 37:116:1924.
9 Read, J. M.: Iodin in Exophthalmic Goitre. Endocrinology, 8:746:1924.
10 Boothby, W. M.: Use of Iodin in Exophthalmic Goitre. Endocrinology, 8:727:1924.
11 Fraser, F. R.: Iodin in Exophthalmic Goitre. Brit. Med. J., 1:3340:1925.
12 Clute, H. M.: Use of Lugol's in Exophthalmic Goitre. (To be published.)
13 Jackson, A. S.: Effect of Iodin upon Exophthalmic Goitre. Ann. of Surg., 81:739:1925.
14 Seecof, D. P.: Mitochondria of the Thyroid. (In press.) Am. J. Path., May, 1925.
15 Jordan, Sara M.: A Statistical Study of Basal Metabolic Rates and Their Relation to End-Results in Thyroid Disease. (In press.) Ann. Surg., 1925.
16 Holmes, G., Means, J. H., Richardson, E. P., and Starr, M. P.: Treatment of Exophthalmic Goitre. Boston M. and S. J., 191:297:1924.
17 Cattell: Rational Iodin Therapy in Exophthalmic Goitre, Based on Excretion of Iodin, Its Storage in the Gland and Clinical Improvement. (To be published.)
18 Marine, D., and Lenhart, C. H.: Relation of Iodin to Structure and Amount of Colloid. Arch. Int. Med., 3:66:1909.
19 Wilson, L. B., and Kendall, E. C.: Relation of the Pathological Histology and Iodin Compounds of Human Thyroids. Am. J. Med. Sc., 151:85:1916.
20 Kendall, E. C.: Determination of Iodin in the Thyroid. J. Bio. Chem., 19:251:1914, and ibid., 26:149:1921.
21 Zunz, E.: Iodin and Other Constituents of the Human Thyroid. Soc. Belge de Biol., 82:894:1919.
22 Lahey, F. H.: The Goitre Problem. Read before Ontario Med. Assn., Toronto, May 7, 1925.
23 Pellegrini, R.: Iodin Content of Thyroid at Different Ages. Arch. Ital. de Biol., 65:109:1916.
24 Jolin, S.: Iodin Values in 104 Human Thyroids. Quoted by Zunz (21).
25 Marine, D., and Lenhart, C. H.: Relation of Iodin to Structure of Human Glands. Arch. Int. Med., 4:20:1909.
26 Claude, H., and Blanchetiere, A.: Iodin Content of the Thyroid. J. de Physiol. et Gen. Path., 12:563:1910.
27 Seidell, A., and Fenger, F.: Seasonal Variation of Iodin Content of the Thyroid Gland. J. Biochem., 13:517: 1912-3.
28 Hunt, R., and Seidell, A.: Seasonal Variation of Iodin in Thyroid. Bull. No. 47, Hygienic Reports, Wash.
29 Lahey, F. H.: The Evolution of a Thyroid Clinic. Surg. Clin. N. A. (Boston), 1369, Dec., 1924.
30 Kessel, L., Lieb, and Hyman, H. T.: Effect of Rest in Exophthalmic Goitre. Arch. Int. Med., 31:433:1923.
31 Halstead, W. S.: Hyperplasia of the Remainder. Johns Hopkins Hosp. Reports, 373:1896.
32 Marine, D., and Williams: Relation of Iodin to Structure. Arch. Int. Med., 1:349:1908.

NEW GROWTHS INVOLVING THE TERMINAL BILE AND PANCREATIC DUCTS

BY ERNEST SPRINGER, M.D., M.SC.

THE study of cancer of the ampulla of Vater is of relatively recent date. Few cases have been reported.

In order more fully to understand the clinical study and pathological anatomy of cancer of the ampulla of Vater, it is necessary to have exact information of the anatomical relations of the bile and pancreatic ducts to the second portion of the duodenum. In one-third of all instances, the common bile duct does not traverse the head of the pancreas but it runs along the posterior



Diagrammatic representation of variations that may occur in the course and method of exit of the common bile duct in its relation to both the pancreatic ducts and duodenum.

surface of this organ to enter the duodenum separately or in conjunction with the excretory duct of the pancreas. In the other two-thirds of the instances, the common bile duct in its terminal portion passes through the substance of the pancreas from which it emerges to enter in an oblique direction, the wall of the second portion of the duodenum. It traverses the thickness of the gut, at this point, for an area of a few mm. or one or two cm. in an oblique direction. The bile duct may now penetrate the intestine and open alone into the duodenum or, as is more common, may unite with the pancreatic duct, thus forming a common channel (the ampulla). This ampulla is only a few mm. in length and breadth and opens into the lumen of the second part of the duodenum, less often directly or more usually through a small knob of tissue, the papilla of Vater, which projects inwardly from the mucosa of the intestine.

It is thus noted that many variations may occur in the course and method of exit of the common bile duct in its relation to both the pancreatic duct and the duodenum. Letulle and Lorrier distinguish the following four common types:

(a) The ducts unite to form a common ampulla. This is considered the normal arrangement.

(b) The ducts unite while still some distance from the lumen of the intestine and enter the intestine by a small common channel, but without the formation of an ampulla.

(c) The ducts open separately into the intestine without the formation of either ampulla or papilla.

(d) The ducts open separately, but through the formation of a papilla.

Because of the great variability in the course of those ducts and in their relationship to each other it will be readily conceived that the obstructive capacity of a new growth arising in this vicinity will depend in great part upon the anatomical conditions which it finds as well as upon the point from which it arises and the direction in which it grows.

ORIGIN OF NEW GROWTHS IN THIS REGION

We recognize six principal points from which a new growth can originate in this vicinity:

1. The common bile duct.
2. The ampulla of Vater.
3. The duct of Wirsung.
4. The papilla of Vater.
5. The duodenal mucosa.
6. The head of the pancreas.

TYPE 1. CARCINOMA OF THE COMMON BILE DUCT AT OR NEAR ITS TERMINATION

This point of origin is fairly frequent as compared with the ampulla of Vater or the duct of Wirsung as a starting point. One third of all new growths of the bile ducts arise in the lower or terminal portion of the choledochus (Rolleston). Growths originating here are practically always carcinomata. They are small white or pinkish tumors, which early encircle and constrict the lumen of the duct, causing complete obstruction to the passage of bile. The tumor usually grows along the course of the duct and outward into the duodenal wall, infiltrating the mucosa and finally ulcerating freely into the lumen of the intestine. Once the carcinomatous process reaches the mucous surface of the duodenum it may spread rapidly over this surface as an ulcerating necrosing tumor. Involvement of the duct of Wirsung and of the head of the pancreas usually follows.

The duration of this form of carcinoma is five to six months. Local glandular metastases are frequent, involving the lymph nodes on the posterior surface of the head of the pancreas and those in the pancreatic and duodenal angles. The liver may also show a few metastatic nodules.

The symptoms are those of gradually increasing and unremitting jaundice, associated with loss of weight and cachexia. In this type of case the gall bladder is usually firm and globular and distinctly palpable. The stools are acholic.

The clinical picture may be confused by attacks of abdominal colic simulating gall-stone colic, so-called "pseudo-gall-stone colic." Though gall-stones are present in at least one-third of the cases of choledochus carcinomata, yet it is generally recognized that such attacks of pain are due to irritative spasm of the duct or spasmodic contraction of the tense gall-bladder.

TYPE 2. CARCINOMA ARISING IN THE AMPULLA OF VATER

This type of carcinoma is rare, Rolleston, in 1912, being able to cite only nineteen genuine cases. Hanot, who has given us one of the clearest descriptions of this variety of cancer, termed it "cancer du pylore pancreaticobilliare," in contra-distinction to neoplasm arising from the duodenal surface of the papilla or from the bile duct. It occurs as a small papillary outgrowth usually limited to cherry size, springing from the inner folds of the mucous membrane lining the ampulla. Such a growth by its mechanical position blocks the two large ducts entering to form the cloaca.

Biliary as well as pancreatic stasis is usually absolute. Secondary inflammatory and obliterative changes in the pancreas occur. Death takes place within nine months from the cholemia or emaciation. Histologically these tumors are cylindrical-cell carcinomata.

TYPE 3. NEOPLASMS ARISING IN THE DUCT OF WIRSUNG

This is an exceedingly rare form of growth, not more than two or three authentical cases being on record. It is claimed by Letulle that these tumors are always spheroidal-cell carcinomata. The case reported by Carnot and Harvier is a good illustration. The history is that of a woman, aged sixty-one years, who suffered from attacks of pain and vomiting. Ten months later she developed a progressive and intense jaundice, accompanied by advancing emaciation. Death followed an attempt to puncture the distended gall-bladder.

At autopsy a small tumor, the size of a lymph node, occupied the mouth of the Wirsungian duct at its point of entrance into the ampulla. Complete obstruction of both bile and pancreatic systems was present. The tumor was an adenocarcinoma composed of atypical cuboidal cells. No metastases, either glandular or hepatic, were found.

TYPE 4. NEW GROWTHS ARISING FROM THE DUODENAL SURFACE OF THE PAPILLA OF VATER

This point of origin is a more common one, if not the most common, of this group. Of all duodenal carcinomata, 66% spring from the mucosa of the papilla, forming the so-called "circum-papillary" tumors. Carcinomata arising here are usually cylindrical-cell in structure and histological appearance. They vary in size from a small pea or nut to that of the phalanx of the little finger. The form usually taken is that of an excavated or eroded ulcer, depressed in its center, with raised overhanging thickened carcinomatous walls. The tumor grows by extension into the surrounding tissues, the centre ulcerating the deeper strata while the edge advances. Severe, often fatal, hemorrhage frequently results from erosion of larger vessels in the base of the ulcer. In its progress it invades the large excretory ducts in this region, causing obstruction to biliary and pancreatic outflow. In one of our cases, the common bile duct was dilated to the size of the duodenum and upon aspiration, about eight ounces of lightly stained bile was removed. The dilation of the duct systems in this type extends throughout their entire extent to the capillary origins in the liver and pancreas.

Later, as necrosis progresses, these ducts are laid open, thus allowing entrance to infecting bacteria. Suppurative cholangitis and multiple hepatic abscesses are common sequelae of this type of neoplasm. Metastases occur late in the liver and in the regional lymph nodes which underlie the head of the pancreas and infiltrate it. The duration of the illness varies from seven to fifteen months, death occurring from icterus gravis, progressive emaciation, hemorrhage, or hepatic infection.

The symptoms are those of obstructive jaundice, associated with diarrhea, melena and emaciation. Rigors and a febrile course are common. The liver is enlarged, the gall-bladder usually palpable. The icterus in this type of case may be intermittent, depending on whether the new growth is in the stage of infiltration and obstruction or in the later stage of necrosis with the release of the withheld secretions. On microscopic examination this type of tumor is usually a cylindrical-cell carcinoma.

TYPE 5. NEW GROWTHS ARISING FROM THE DUODENAL MUCOSA

This group includes only those neoplasms arising from the mucous membrane of the duodenum, exclusive of those arising from the papilla of Vater, the so-called "circum-papillary" tumors described as Type 4.

Carcinomata of the duodenum are rare, forming only 2.3% of all intestinal cancers or 0.3% of all cancers (N. E. Brill). According to Rolleston, ¾ of the carcinomata of the small intestine occur in the duodenum. Of 36 cases of duodenal cancers, eight occurred in the first portion alone (juxtapyloric), 24 in the second portion (including "papillary" cases), and four in the third portion alone (infrapapillary).

Carcinomata arising in the mucosa of any part of the duodenum may increase in size by extension so as to involve the papilla of Vater or the opening of the large ducts, and so may simulate carcinomata of the papillar or pancreas head. These tumors are cylindrical-cell adenocarcinomata in type and behave essentially like those of papillary origin. They necrose freely, and in so doing may secondarily release the restrained contents of the ducts.

Sarcoma of the duodenum is rare, there being about only 25 cases on record. They are characterized by a diffuse infiltration of the walls of the duodenum, dilatation rather than constriction of the intestinal lumen, ulceration, and hemorrhage. Extension into the pancreas and other contiguous organs is common.

TYPE 6. NEW GROWTHS ARISING IN THE HEAD OF THE PANCREAS

Primary carcinomata of the head of the pancreas occur fairly often. It is impossible to estimate from the accumulated literature of years the relative frequency of primary pancreatic tumors as compared with those arising in the large ducts or in the papilla of Vater, for, except in the most recent literature, these various types were all described under the general heading of "carcinomata of the head of the pancreas." Pitt quotes Blash's figures for the frequency of pancreatic carcinoma as 0.12% in comparison with 0.30% for duodenal carcinomata; new growths arising in the common bile and pancreatic ducts are relatively much rarer than either of these types.

Carcinomata arising in the head of the pancreas are classically described by Bard and Pic, these tumors are usually spheroidal-cell or cuboidal-cell neoplasms, occasionally colloidal. They grow slowly in the head of the gland sooner or later involving the duct systems that traverse the organ, to obstruct them. They advance by contiguity infiltrating the surrounding tissues and organs.

The clinical symptoms are those of gastric disorder (nausea and vomiting) attacks of epigastric pain, emaciation, and weakness. When the ducts are involved obstructive jaundice and fatty diarrhea supervene. Secondary infiltration of the duodenum, when it occurs, creates great difficulty in differentiating these tumors from primary duodenal growths. Metastatic deposits in distal organs are common and take place comparatively early in the course.

The statement that stones never cause complete blocking of the common duct may appear too sweeping to the views of some surgeons who have experienced large stones firmly impacted in the choledochus near the ampulla, and apparently completely blocking its lumen. Yet by means of duodenal content analysis, the findings seem clearly to point to the fact that stones do not completely block this duct while neoplasms usually do. This fact is not a new one though not usually recognized that stercobilin in this stool speaks in favor of stone obstruction, its absence in favor of neoplasm.

Courvoisier's law, of the enlargement of the gall-bladder to a palpable mass in new-growth obstruction and its failure to do so in stone, is known to be correct in 80% to 90% of the cases only. Cases in which the law fails to hold true are probably those in which the malignant process has ulcerated and allowed a partial escape of bile into the duodenum.

Treatment of carcinoma of the papilla is medical and surgical. Medical treatment is symptomatic. It consists of relieving the malaise and stopping the diarrhea. In all cases, it is contraindicated to administer a cholagogue which increases the biliary tension.

The surgical treatment is carried out only if the general condition of the patient permits. It is either (1). Cholecystenterostomy or (2). Radical.

Kausch suggested a two-stage operation of the following nature:

First stage: Preliminary cholecystenterostomy. This operation relieves the jaundice, improves the nutrition of the patient, and helps to overcome the tendency to hemorrhage at the subsequent laparotomy.

Second Stage: Radical excision of tumor, duodenum, and involved head of the pancreas; blind closure of upper end of duodenum; implantation of ablated head of pancreas and common bile and pancreatic ducts into lower end of duodenum; gastroenterostomy.

In a case of carcinoma of the papilla on the service of A. V. Moschcowitz, Mt. Sinai Hospital, the tumor was removed by the method of transduodenal circular excision. This case lived for six days and died of hemorrhage. DeWitt Stettin reports a case that is still alive eight and a half years after an operation of this type.

Though a common practice, it is futile for a physician who makes the diagnosis of "cancer of the head of the pancreas" to resign himself and patient to the attitude of "there is nothing more to be done." The greatest number of patients suffering from this disease enter the hospital, two or three months after the onset of jaundice. The intervening time has usually been spent by the physician in waiting to observe whether a suspected stone will pass or not. This is the period most valuable to the patient. The proper procedure to follow in a person over middle age who becomes deeply jaundiced, whether painlessly or not, is to attempt immediately to discover, by means of the duodenal tube, whether the main ducts in the region suspected are absolutely blocked or not. If they are, one of both of them, the diagnosis of new growth should be made; the case should at once become a surgical one, and no further time be spent in "watchful

waiting." A cholecystenterostomy at this time will be of greater assistance to the patient and prevent the dire consequences of a fully established malignant icterus. The mortality of this preliminary operation would probably be very much lower at this time than when performed months later.

Four to six weeks may safely be allowed to elapse after a cholecystenterostomy. The nature of the growth permits of the delay, for it grows slowly and has little tendency to metastases. With more assurance and a much better hope of success the second stage of the operation may be undertaken. The successful issue of the radical excision of new growths involving these large ducts will rest in great part on the alacrity with which the physician makes this early diagnosis and calls to his aid a competent surgeon.

GENERAL SUMMARY

In most of the new growths involving the bile and pancreatic ducts we are dealing with localized and relatively benign "rodent ulcers." A large majority of the so-called tumor of the head of the pancreas are really growths of the common bile duct, ampulla, or papilla of Vater.

THE USE OF GLUCOSE IN THE TREATMENT OF DISEASE IN CHILDREN*

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DURING the past several years the use of glucose in the treatment of disease in childhood has become increasingly more popular although at times it has not brought about the beneficial results expected. Such instances may have been due to a lack of understanding of the principles underlying its use or the result of the use of improperly prepared glucose.

The principles upon which the administration of glucose are based are complicated. In order to understand them it is necessary to review briefly some features of the normal metabolism of fat, carbohydrate, and protein, and to show how the metabolism may be changed during fasting. This is essential because in the opinion of the writer fasting is the main indication for the use of glucose in disease. Under normal conditions there is a stream of sugar (dextrose) circulating in the blood and a reserve supply of sugar in the liver and muscle in the form of glycogen. The heat energy of the body is obtained chiefly from carbohydrates and to a less extent from fat and protein. The carbohydrates have the double function of supplying energy and of causing the combustion of fat into carbon dioxide and water. It has long been known that fat requires a certain amount of carbohydrate for combustion and if this is not available in large enough amounts fat is only partly oxidized and there is ketone formation.

In many of the diseases of children vomiting is a common symptom and may become so excessive or persistent as to result in a complete fast. This involuntary type of fasting is more difficult to control than the voluntary fast.

In complete fasting there is no food entering the body to supply energy, and the body must obtain the necessary fuel from its own tissues. The glycogen reserve is sufficient to last for about 24 hours of complete fast after which energy is obtained in a large part from the body fat. When the glycogen reserve becomes depleted and there is insufficient sugar for the oxidation of fat, a ketosis results. The ketosis of fasting is different, however, from the ketosis seen in fever without fasting.

The ketone acids (beta-oxybutyric and diacetic acid) combine with the circulating bases of the body and there results a diminution in the available alkali reserve of the body. The carbon dioxide combining power of the blood is consequently reduced depending upon the severity of the ketosis and there is a compensated acidosis. When the acidosis becomes more severe and the patient has air hunger and cherry red lips, there is an uncompensated acidosis. It has been shown that if carbohydrate is given to this type of patient the ketosis will rapidly disappear and the carbon dioxide combining power of the blood quickly returns to normal. In other words, the best method of correcting a starvation acidosis is to administer glucose.

In DIABETES the picture is quite different from that seen in fasting. The failure on the part of the organism in diabetes to utilize glucose properly is due to the lack of insulin which enables carbohydrate to be burned. Owing to the inability to burn carbohydrate there is an attempt by the body to burn the fats instead. During fasting the blood sugar is markedly reduced but sufficient insulin is presumably present for the combustion of the circulating sugar, whereas in diabetes the sugar circulating in the blood, although present in sufficient amounts, is not available for combustion, due to the lack of insulin. In this case insulin must be administered with or without glucose to correct a diabetic acidosis.

In severe MALNUTRITION the use of glucose in combustion with insulin has been advocated. The test of time has not as yet proved the worth of this procedure.

Occasionally the administration of glucose has resulted in a condition that has received the

*From the Children's Medical Department, Massachusetts General Hospital, Boston.

name of glucose shock, symptoms of which are increased temperature, cyanosis, rapid and weak pulse and anxiety. At first this condition was thought to be due either to an intolerance for glucose or to some untoward effect of glucose on the diseased condition. Williams and Swett[1] drew attention to the fact that solutions of glucose and water turn acid easily. Further studies by Stoddard[2] at the Massachusetts General Hospital have resulted in a method of preparation of this solution by means of which the danger of shock has been entirely eliminated. He recommends that the glucose solution be autoclaved at fifteen pounds pressure for twenty minutes within two hours after it has been made up, and never used after it is forty-eight hours old on account of rapid decomposition due to heat or the possibility of contamination. To the autoclaved solution should be added a buffer solution*. Since adding Dr. Stoddard's buffer solution no untoward results have been experienced at the Massachusetts General Hospital even though the glucose be given intravenously.

The administration of sugar by mouth is limited to those cases in which it is possible to retain it. Glucose in the form of corn syrup has been used with considerable success. My personal experiences have seemed to indicate that honey, cane sugar or orange juice, when given in small amounts at frequent intervals, produce as good, if not better, results than corn syrup. Sugar is rapidly absorbed and small amounts are usually sufficient to diminish a ketosis. If a hypoglycemia is present 3 grams of honey or 3 ounces of orange juice have been sufficient definitely to raise the blood sugar. In the rare critical case in which immediate results must be obtained, glucose must be introduced subcutaneously or directly into the blood.

When impossible to administer sugar by mouth, a five per cent. glucose solution in normal saline may be introduced by rectum if diarrhea is not present. The solution should be introduced at body temperature and at least twenty minutes allowed for the introduction of eight ounces. Another means is by the drop method. In this way it is sometimes possible to introduce as much as one quart of the solution by rectum in twenty-four hours, if it is not given continuously and the rectum is rested every two to three hours.

A ten per cent. solution of chemically pure glucose in normal saline may be introduced subcutaneously or intravenously. The solution should be sterilized with the greatest care and buffer salts added to prevent the possible reactions that have received the name of "glucose shock." As much as 200 c.c. may be given intravenously to children of three or four years. Under ordinary circumstances there is no danger of overloading the circulation because anhydremia is usually a complication in most severe cases of acidosis and the addition of fluid to the body merely replaces fluid that has been lost earlier in the disease. It may be given intravenously when immediate results are desired as in shock, or when it is impossible to use other methods.

*161.1 grams $NaH_2PO_4 — 2H_2O$ brought up to a volume of 500 c.c. with distilled water. To this should be added 2.3 normal sodium hydrate in sufficient amounts to make a Ph of 7.5. It requires very close to 78 c.c. of the sodium hydrate solution per 100 c.c. of the phosphate solution.

REFERENCES

1 Williams, J. R., and Swett, M.: The Practical Application of Buffers. Jour. A. M. A., 78, 1026, 1922.
2 Stoddard, James L.: The Avoidance of Intravenous Glucose Reactions. Boston Med. and Surg. Jour., 1924, 191, 1121.

CONGENITAL TUMORS OF THE MAXILLA. REPORT OF A CASE WITH OPERATION

BY GEORGE D. CUTLER, M. D., F. A. C. S., AND JOHN C. ROCK, M. D., BOSTON, MASS.

TUMORS of the jaws are rarely encountered in the newborn. For this reason the following case history with illustrations and pathological description is reported.

Baby H. was born (in normal labor) at the Faulkner Hospital, October 12, 1924, at 9 P. M. Physical examination was normal in every particular except for two pedunculated tumors, arising from the edges of the superior alveolar process on either side of the median line, one of which protruded between the lips and both masses nearly filled the anterior portion of the mouth. There was no respiratory disturbance. The infant continually sucked the tumors.

Figure 1 represents the appearance of the tumors in situ.

As the condition was unfamiliar considerable speculation as to the nature of the tumors entered into the differential diagnosis. Inspection suggested mucocele, some form of odontoma, polyp or pedunculated fibroma. The mucous membrane was normal in appearance except for being somewhat stretched with dilated veins run-

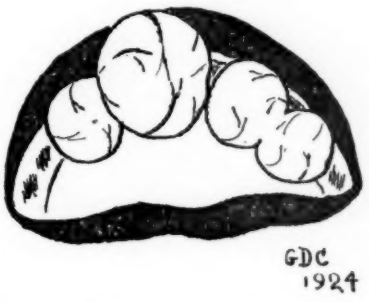

FIG. 1. General appearance of the tumors in situ.

ning through it. The tumors were of firm consistency and lobulated rather than cystic, therefore, mucous cyst was ruled out. Fibroma was considered the probable diagnosis pending a definite pathological examination. It was decided to defer removal of the tumors until the following morning.

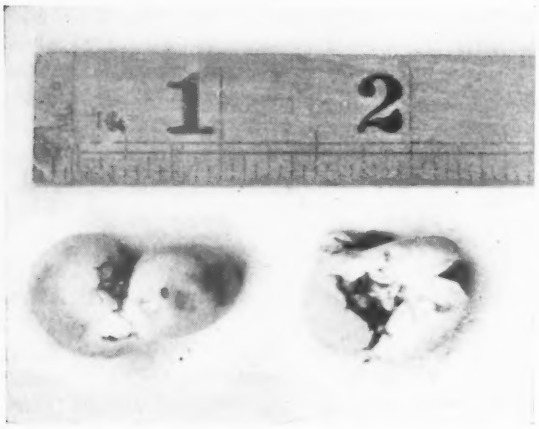

FIG. 2. Appearance of the tumors after removal.

The operation was performed under ether anesthesia, October 13, 1924, at 10 A. M., the baby then being thirteen hours old. The pedicles were transfixed, tied off with No. 0 chromic catgut close to the alveolar process, and the tumors removed. Some difficulty was encountered in controlling the bleeding from one pedicle on account of the friability of the tissue.

FIG. 3. Low power photomicrograph.

Following the operation the baby made an uneventful recovery.

Figure 2 shows the appearance of the tumors after their removal.

The following is the pathological description by Dr. G. Wilens, who also kindly furnished the photomicrographs (Figures 3 and 4).

Macroscopic:—"The specimen, S-24-183, consists of two similar tumor nodules measuring 3.5x1.5 cm. and 2.5x1.5 cm. These are irregularly ovoid in shape, smooth surface, encapsulated, moderately firm and opaque white. The cut surface is opaque white, finely granular and almost pyoid. Fixed in formalin.

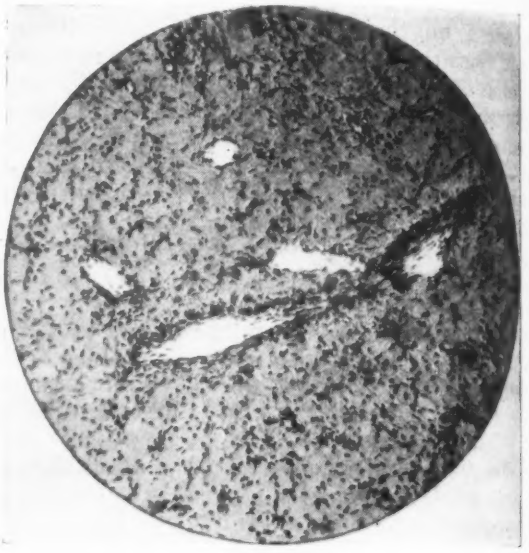

FIG. 4. High power photomicrograph.

Microscopic:—The sections are uniform in appearance and design. The tissue is for the most part surrounded by a thin layer of stratified squamous epithelium. These cells are everywhere limited by a basement membrane. The bulk of the tissue is composed of large cells. These cells are oval or elliptical in shape, possessing a sharp cell outline, finely granular cytoplasm, and usually a round small nucleus, which may be centrally or eccentrically placed. The nucleus is rich in chromatin and darkly stained. No mitotic figures observed. The granular cytoplasm often stains a basic color. The cell is about thirty-five to thirty-eight micra in diameter.

The cells are packed together in one large continuous collection without any characteristic design or alignment. There are frequent widely separated blood capillaries. There are infrequent irregular spaces lined by relatively large cells having large chromatic nuclei. These are probably epithelial cells.

The cells are supported by a delicate connective tissue stroma which was brought out more obviously by impregnation with $AgNO_3$ solution.

Staining frozen sections with Nile Blue and Scharlach R failed to reveal the nature of the cytoplasmic granules.

Microscopic Diagnosis:—Benign Tumor, probably epithelial bud variety."

Comment:—No description of a similar condition has been found in various text books consulted.

THE TEACHING OF OBSTETRICS*

BY EDWARD P. DAVIS, A. M., M. D., F. A. C. S.

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In beginning our consideration of this subject it is well to question the scope of modern obstetrics. Shall this include the anatomy and physiology of the un-impregnated patient? The teacher of obstetrics would be spared needed time if the professor of anatomy and the professor of physiology taught the anatomy and physiology of the non-pregnant patient, but in many instances they do not do so, believing this to be the function of the teacher of obstetrics.

If modern obstetrics is to have its full development it should include everything which happens to the pregnant woman and her off-spring from the time of conception until her complete anatomical and physiological recovery from pregnancy and parturition. Pregnant patients, however, are not infrequently attacked by disease of organs other than the generative organs. Pregnant women are often found in medical wards suffering from pneumonia and typhoid and in surgical wards the victims of appendicitis. Is this fair to the pregnant patient and how should such complications be met? We believe that pregnant and parturient patients should be in obstetric wards, but that in cases where the disease is not in the organs of reproduction, that an appropriate consultant should be called by the obstetrician.

Pregnancy certainly so alters the physical conditions present that the judgment of the obstetrician is necessary in the care of such cases, while he may consult to advantage with his colleagues.

Pregnancy complicated by ovarian and fibroid tumors and other abnormal conditions of the generative tract, belongs to the obstetrician and is best cared for by him, with consultation if necessary. The complications which gradually develop after labor, the result of lacerations and stretching of the tissues, are best treated by the obstetrician. The custom of giving the new born infant to the care of the pediatrician is comparatively recent, and the statement has been made that the pediatrician should order the diet and hygiene of the nursing mother. This we believe to be a mistake, and that the best interests of mother and child will be served if both are under the care of the obstetrician while the infant is nursing; should the necessity arise for artificial feeding, this may best be done by the pediatrician.

There is a tendency among some to consider pregnancy as a natural condition which very little disturbs the balance of economy in the patient; this would be true were all pregnant patients invariably healthy, but as they are not, the obstetrician who studies pregnancy and its complications is the wisest guardian of the interests of the pregnant and parturient woman.

Those who have had experience in agriculture know that it is difficult to construct a pig tight fence, one through which an ambitious and energetic pig cannot make his way. Those who have had experience in hospital management know that it is very difficult to frame rules or regulations which shall assign patients with invariable propriety to those who should have them, and some porcine colleague may take those cases which do not belong to him.

In what portion of a five year course, which includes a year as resident physician, should obstetric study begin? This will depend somewhat upon the abundance of clinical material available, and also the facilities for giving competent clinical instruction. The theory of obstetrics may well be taught in the second year and the ground work carefully laid by thorough study of normal pregnancy, pelvimetry, palpation, auscultation and above all the diagnosis of position, presentation and engagement. A good test of the knowledge and intelligence of the student will be found in his ability to recognize engagement and descent of the presenting part or their absence, and this may well serve as a test for the success of the teaching in this year. With this ground work, should clinical material be available, with competent instructors, the student may observe spontaneous parturition and under careful instruction may deliver some normal cases. He should regularly attend pre-natal clinics, not only to study diagnosis, but the complications of pregnancy, and should also avail himself of follow-up clinics that he may learn to recognize a good recovery from parturition or a failure to secure a good result. Often the clinical work can best be done during the usual vacation including a thorough drill in asepsis and antisepsis. In the pre-natal clinic, examination of the urine and the taking of blood pressure would naturally be part of his work.

In the Junior year the management of spontaneous parturition should be taught in detail, with review of the diagnosis of pregnancy, position, presentation and engagement and descent. The Junior student should receive especial instruction in hemorrhage complicating pregnancy and causing abortion, in placenta previa, accidental placental separation and ectopic pregnancy, and while he may not share in the treatment of these conditions, their diagnosis should be thoroughly taught. The diagnosis of the toxemia of pregnancy in its various stages, the principles of treatment in toxemia and the diagnosis and treatment of focal infections complicating

*Read at the 500th meeting of the Boston Obstetrical Society. Boston, April 21, 1925.

pregnancy should also engage his attention. In the pre-natal and follow-up clinics he should constantly review his study in diagnosis. In accordance with his ability and desire to work and the ability of his teachers to give him clinical work, part at least of his vacation may profitably be spent in clinical obstetric study.

In the Senior year students should be assigned for duty for definite periods as clinical assistants in residence; they should lodge in the hospital or immediately adjacent, where they are available for clinical work at any time. They should act as clinical clerks in the preparation of histories and the taking and keeping of notes, and as clinical assistants in the actual treatment of patients. In pre-natal and follow-up clinics the scope of their work should depend largely upon their intelligence and fidelity. These students should personally deliver, under competent instruction, cases of spontaneous labor, and should be taught the immediate repair of the ordinary injuries following parturition. They should constantly review the diagnosis of position, presentation, engagement and descent and also the mechanism of spontaneous labor, and they may act as assistants in obstetric surgical operations. The important point in the instruction in the Senior year is the definite assignment of the student for obstetric work only, for a definite period. It is hoped that this period will be sufficiently long to satisfy his teachers, and such intensive study is usually appreciated by the student and is of great benefit.

In the fifth year the student becomes house officer; here he should not only treat patients but should begin to teach; he should deliver patients in spontaneous labor and practice immediate repair of lacerations, and while so doing he should demonstrate to students who may be present, including the nursing staff. The house officer should be thoroughly conversant with the treatment of hemorrhage both preceding labor and post-partum. While he may not be competent to operate for ruptured ectopic pregnancy, he should be sufficiently skilled in diagnosis to recognize grave conditions and very frequently to make correct diagnoses of intra-abdominal complications. In proportion to his ability and application he should perform low forceps operations, should administer the non-operative treatment of toxemic and eclamptic cases, and should be skilled in such manipulation as bleeding, intravenous transfusion, lavage of the stomach, the intrauterine use of the tampon under definite indications, and should be thoroughly conversant with the use of the most important drugs employed in obstetric practice; for example, he should know the dangers of pituitrin and how to avoid them. He will frequently act as the chief of the pre-natal and follow-up clinics. The pathology of the new born and its diseases should interest him and he should be competent to recognize and treat them.

It is impossible to define any absolute rules as to the work of the student in each year of the obstetric course. There should always be a considerable latitude for the encouragement of those students who show unusual intelligence and application, and it is the observation of the writer that such latitude is greatly appreciated.

Shall students of medicine attend patients in labor outside the hospital? the arguments for such attendance have been that by the management of these cases they are introduced to what they must encounter when they begin their individual practice; that a student thrown upon his resources in a tenement house will learn more than in the wards of a well equipped maternity. The writer is not convinced that this is the best method. If the profession is to be indefinitely content with obstetric practice done in a slip-shod manner under worse conditions than those used in teaching students obstetrics, then this is sufficient; but if we hope to improve obstetric practice so that each case shall receive the same care the practitioner gives to surgical patients, then this method of out patient service, as often conducted at present, is far from ideal. Why should not the medical student in his Senior year or Junior year be sent to the houses of patients to learn to diagnosticate pleurisy or intercostal neuralgia; abdominal colic or appendicitis; tonsillitis or diphtheria, and other medical conditions, and why should not the student in surgery be sent into the houses of patients to make a differential diagnosis of fracture or sprain, serious injury to the cranium, or infected or non-infected wound, and yet my medical and surgical colleagues have never approved of such a proposition. Again it is stated that many patients cannot come to the hospital for confinement; that number is considerably lessened by an efficient social service, so that cases are rare where, if the patient is really willing to go to a hospital, she cannot do so.

The most important difficulty in the question of out-patient obstetric practice by students lies in securing sufficient money to pay competent instructors to attend these cases with the student, and also to compensate visiting nurses and furnish the necessary apparatus required to do this work thoroughly and well. The writer has never had sufficient means at his disposal to carry on such service to his satisfaction.

Granted that such service is to go on, the students who are to engage in this work should be definitely assigned to residence at the out-patient dispensary, daily clinics should be held at the dispensary by paid instructors, and visiting nurses should bring pregnant women for examination, and the student should be drilled in diagnosis and made acquainted with the cases which he is to deliver. A competent ambulance service should be available and complicated cases should be promptly transferred to hos-

pital. The students previously assigned to these cases should accompany the patient to the hospital and follow her case in the wards of the maternity. In such out-patient work students should be encouraged to report what they believe are abnormalities, and their mistakes should not be ridiculed lest through fear of ridicule they do not report promptly some serious condition.

What is the effect upon the poor of such out-patient practice by students? In the experience of the writer many who could pay have taken advantage of this service when they knew that it was supervised by competent instructors; occasionally students have met difficulties from ignorant and sometimes drunken persons, and on the other hand, in cases of genuine poverty and suffering, students who could ill afford it have bought food for needy patients: on the whole, the opinion of intelligent students has been that they could benefit more by delivering the patient in a maternity with proper appliances under competent instruction than by delivering patients in their homes, oftentimes without the service of an instructor and without the service of a nurse. Ideal obstetric practice would have all patients go to a hospital and toward this end the profession is working and with considerable success.

Of especial importance in securing successful obstetric teaching are paid instructors whose time is at the disposal of the student. How to regulate fixed appointments for teaching with the uncertainty and difficulty of private obstetric practice is beyond the comprehension of the writer; but unless the instructor is paid, one can hardly expect him to give up a part of his livelihood, especially if he be beginning his practice, to keep teaching appointments.

The definite assignment of medical students for obstetric work is also of very great importance. and yet it is often difficult to persuade a medical faculty that such is necessary. Shall we in the future apply this same method to other branches of medicine, and if this is so valuable and important in obstetrics, why should not the same thing be done in medicine and surgery and other important branches? This would call for radical changes in the curriculum of many institutions.

Students should be encouraged to maintain obstetric societies among themselves; such are useful in reviewing the teaching which the students receive and developing their powers of writing and speaking and in affording opportunity for the staff to meet students informally. A maternity hospital will have a library to which students and residents will have access, and they should be encouraged to look up cases, compare notes and discuss them together.

With proper precautions, there is no reason why students on obstetric duty should not attend autopsies upon obstetric cases; they should not handle specimens or assist at autopsies, but under proper precautions their presence need not be a source of danger.

The personal element in the teacher and his personal ability to interest students is of especial importance in obstetric teaching. Like obstetric practice such teaching is difficult, the uncertainty of time, the tedious progress of slow parturition, the interruption with meal hours and other desired engagements, render the subject often less attractive than other branches of medicine; but the teacher who has a gift for teaching can make interesting any subject and such are needed in obstetric instruction.

An interesting question arises as to whether obstetrics and gynecology shall be included in one department or maintained separately. If the medical institutions of the United States be canvassed upon this point, there seems to be a tendency in Eastern institutions to keep these two departments separate, while in the mid-west and especially in medical schools which are branches of State Universities, the two are usually included in one department. Among the advantages claimed for this are the cognate character of these subjects and the fact that in some of the serious complications of parturition, the technical skill of the gynecologist is in demand. Among the important disadvantages of placing these subjects in one department is the fact that it is physically exceedingly difficult for one man to do justice to both. As head of the department he must depend to a considerable extent upon assistants for much of the clinical work, and this results in practically two departments. If the modern idea that obstetrics includes the secondary repair of injuries in parturition and the complications of pregnancy prevails then the need for the technical skill of the gynecologist is not a pressing one. The writer has no brief for either view, but perhaps the ideal condition would be that the two departments were to be in charge of men personally friendly, and each willing to coöperate in the work of the other for the good of the student; such a state of affairs rarely pertains.

The Staff of the Department of Obstetrics must have its chief and he will do well to meet the entire class in the Senior and Junior years at least once each week in clinical and didactic instruction. The one hour usually assigned for the obstetric clinic is too short for a satisfactory clinic, two hours is none too much. Of this time the teacher may begin his clinic by a didactic explanation of the case upon which an operation is to be done or a didactic treatment of cases which are to be exhibited only; the purely clinical part, whether operative or demonstrative, would naturally follow. Pre-natal and follow-up work should be included in the instruction by the chief of the department. He should also have ward classes and be accompanied in his rounds by students and residents as well as the house officers; the more he can come into per-

sonal contact with students the better for both.

In any considerable service, several general assistants are needed, each of whom is competent to perform emergency obstetric surgery at any time. The opportunity of teaching afforded by obstetric emergencies is exceedingly valuable, and yet it may be impossible for the chief of the department to do all of this work, hence the important function of the chief assistants. It is needless to say that adequate compensation is necessary. The chief assistants should pay especial attention to obstetric surgery and should instruct house officers in the performance of operations; they may also to advantage instruct students in the pathology of the new born. Demonstrators are also needed and demonstrations should be didactic and clinical.

In the Sophomore year valuable instruction can be given by models, lantern pictures and the exhibition of specimens. So far as moving pictures are concerned in obstetric demonstration, those originating in Vienna were shown in a private view to the writer and his staff, and the vote of the staff was unanimous against them. The most valuable pictures were those of eclamptic convulsions. It was observed that in some of the pictures, dead bodies were used instead of living. There may be other moving pictures which are valuable. The didactic demonstrative class may be made of very great value and should not be omitted.

Clinical demonstrators may to advantage be in charge of out-patient dispensary, pre-natal and follow-up clinics, they should also demonstrate spontaneous parturition when they are available, and should teach house officers how to demonstrate their cases successfully. The clinical demonstrators should pay especial attention to the placenta and its abnormalities, and make the students familiar with the appearance of the placenta in health and disease. They should not omit the new born infant from their demonstrations.

The function of house officers as teachers is practically that of assistant demonstrator, and the question of his value will depend entirely upon the intelligence and interest and general ability of each individual house officer. They can be of very great service or they can seriously impede obstetric teaching.

A very important portion of the staff of obstetric teaching forces is the visiting nurse and the social service worker; the visiting nurses especially, if students maintain an out-patient practice, can help them very greatly by calling their attention to conditions of which they should have knowledge, and by endeavoring to maintain in the family of the patient appreciation of the work of the staff. The influence for good of such a nurse may be very considerable.

But we may state our theories and what we desire, and what we believe would benefit obstetric teaching, and we can make little or no improvement until there comes about an essential change in the attitude of the profession and the public toward the question of obstetric practice. Certain economic conditions are here of great importance; what the human race considers valuable it will give largely for, both in money and in attention; the cheapest things in these United States at present are law and life. With the former we have nothing to do, but it is the purpose and the function of the obstetrician to save the lives of not only mothers, but new born children; but the conditions necessary for lessening infant mortality and the mortality and morbidity of parturient women will not be secured unless these lives are considered intrinsically valuable, and unless parturition be regarded as important an event as the performance of a major surgical operation, important not in the sense that interference must be practiced, but that the parturient woman should receive the same care and attention which is given to a surgical patient. A man will pay to have an ovarian tumor removed from his wife, valuing her life and health and with the hope that the tumor will not be reproduced; but he would not think of placing in the same class the difficult delivery of his child by forceps, nor would he compensate his physician equally for the two cases.

Our civilization at present is essentially sordid, and the value of human life is its wage earning capacity, and a young child is a source of expense and not of income and therefore is of little financial value, and hence the delivery of the child is not a matter of essential importance.

On the side of the profession obstetrics has long been a pot-boiler for the general practitioner, he has taken the obstetric work to get the general practice of the family; the obstetric work is distasteful to him and a disagreeable necessity, he has not the knowledge, skill, experience or the ability to do it well, but because his competitors do it, he is obliged to do it to gain practice. This condition is essentially wrong, a mismanaged obstetric case can do a general practitioner very great harm, and it is unjust to him to undertake to manage successfully a complicated parturition without especial training, competent assistants and proper surroundings. Gradually there are developing obstetric specialists, maternity wards are increasing in number throughout the country, and improved roads and motor vehicles make it possible to transfer patients in labor to hospitals for delivery. These conditions all tend toward an improvement in obstetric practice.

The public are wrongly informed regarding what constitutes a major obstetric operation; they hear of Cesarean section and look upon that as the only important operation of obstetrics. Obstetricians realize that a difficult forceps delivery, a difficult version, the repair of extensive

lacerations in patients not in good condition, and the management of placenta previa are of equal importance and sometimes far more difficult than Cesarean section. The profession must realize and acknowledge this, and the public be educated to the true conception as to what constitutes an important obstetric case.

When human life becomes more valuable, when the public realize that injuries in birth may cause defective or abnormal mentality and moral development in children, when the public can be taught that the first parturition of a woman often decides her health for the remainder of her life, it may then be possible to secure adequate endowment for maternity hospitals and especially for those who teach obstetrics. It is questionable whether full time teaching is most successful; but teachers must be supported and adequately paid if proper obstetric teaching is to be secured; and with proper teaching of students will develop men competent to do good obstetric practice. The general practitioner will then not be placed in circumstances likely to bring disaster upon his patient and himself, and he will find it a far better policy to refer a complicated parturition promptly to a maternity hospital and its staff than to have a fatality develop under his individual care.

The writer has no dogmatic opinions upon the teaching of obstetrics, his statements are made as suggestions, because he realizes that obstetric teachers are placed under very different circumstances in different institutions. None of us can do all that he desires, and the question has been how to make the most of the facilities, often limited, which we have at hand. A great improvement in obstetric teaching is going on, and there is room for much more.

IS THE PROFESSION INTERESTED IN PREVENTIVE MEDICINE?*

BY EUGENE R. KELLEY, M. D., COMMISSIONER

FOLLOWING an explanation in the columns of the JOURNAL of March 26, 1925, a letter was sent early in April to all the doctors and boards of health in the state. This letter explained that a card had been prepared urging persons to obtain preventive medicine from their private physician. The health examination and prophylaxes against smallpox, typhoid and diphtheria were specifically mentioned. Those desiring to use this card, a copy of which was enclosed, were asked to so inform us.

There were 5834 such letters sent. Deducting the 353 sent to boards of health and the 83 returned for one reason or another, it leaves 5396 letters that were received by doctors throughout the state. How many of these physicians will find this type of card adapted to use in their practice? It cannot well be used by men that have retired, that are in laboratory or research work, or that are in many of the specialties. In other words, it is especially adapted to the general practitioner, the pediatrist and the internist, though others may be able to use it to a limited extent. How many shall we exclude as falling in the former group? Any figure is a guess, but I should suppose it would not be far from 50 per cent of those whose names appear in the Directory of the American Medical Association. That leaves 2698 to whom this card is particularly useful. After three weeks we have had requests for cards from 135 physicians, or one in every 19 falling in this group. This far exceeded our anticipation and our initial supply of 15,000 was soon exhausted, and 25,000 more have been ordered. This would seem to be concrete evidence that a considerable nucleus of physicians are actively interested in the practice of preventive medicine. It is a most heartening omen for the future.

These 135 physicians are distributed widely over the state, in both large and small communities. The number of cards asked for varies from "a few" to 2,500! Many questions were asked and valuable suggestions given, which have been utilized in revising the text of a new edition of the card now on order. One physician asked why prophylaxis against scarlet fever was not included. The reason was of course that this procedure is still on trial, though it will in all probability be included in time. Another suggested that addiction to home-brew be included among preventable diseases. Still another asked what was a proper charge for a health examination. This question is respectfully referred to the Committee of the Massachusetts Medical Society which is considering this matter.

In addition, requests for cards were received from eight boards of health, two industrial physicians, three hospitals and sanatoria, and one school and public health nursing association. One board of health plans to print 10,000 of these cards for distribution in all the schools. Another asks for 2,000 to give out through the teachers. An industrial physician asks for 500 so that a card may be put in each pay envelope. One doctor requests a supply to distribute at the annual meeting of a large social organization at which time he is to speak on this subject. Another wants enough to give out to the doctors at a local medical society meeting.

It is to be regretted that we so underestimated the demand. Some of the orders we could only partly fill, pending the receipt of the new sup-

*From the Massachusetts Department of Public Health.

ply. The more recent requests we have had to defer filling entirely. When the new supply is available for distribution we will so announce through the columns of the JOURNAL, so that others who may desire these cards can inform us. Also we hope for second orders from those who have already had them. We hope these letter will take particular pains to give us criticisms and suggestions based on experience. The available space on the card is sharply limited but we must use it to the very best purpose.

From all this it would seem that the answer to the question asked in the title of this report is that there is a goodly number of physicians in active practice in Massachusetts who are definitely interested in furthering the practice of preventive medicine. May they prosper and multiply!

SMALLPOX IN CANADA FROM 1913-1923

BY SAMUEL B. WOODWARD, M.D.,

WORCESTER, MASS.

IN an endeavor to explain the prevalence of smallpox in territory under their jurisdiction health officers of our border states not infrequently refer to its endemic presence across the line, and we in New England, remembering the Montreal outbreak some years ago, are apt to speak somewhat contemptuously of health administration in the Province of Quebec.

Statistics collected while investigating the prevalence of smallpox in the United States and its dependencies during the years 1913-1923 are of interest in this connection.

When we find that but 12 states in the Union reported less smallpox during the last 9 years than did this same province of Quebec, and that but 4 of the 9 (New York, Pennsylvania, Massachusetts and New Jersey) exceeded Quebec in population; the other 8 (Vermont, New Hampshire, Rhode Island, Maine, Connecticut, Maryland, Arizona and Nevada) being all much smaller, the 2839 cases in a population of 2,361,199 do not seem so excessive; and, when we find that Virginia, Tennessee, Alabama, Minnesota and Iowa all of approximately the same population reported 17,904, 13,896, 11,790, 35,152 and 29,549 cases respectively in 11 years the 6117 of Quebec during the same period appear by comparison in no unfavorable light.

When we learn that in the Province of Quebec "no school or other corporation and no person having the control of a school, college, convent or university or other educational institution shall give admittance to the institution to any pupil, unless provided with a certificate from a practising physician of antivariolic vaccination or of insusceptibility of taking vaccine; the operation having been performed within 7 years" and that "contravention of the above article shall be punishable with a fine not exceeding 20 dollars and an additional fine not exceeding one dollar per day for every day above two during which the contravention exists," those of us who, for years on end, have been vainly trying to induce the Massachusetts Legislature to pass an infinitely milder measure wonder whether the Quebec authorities are quite as benighted as we have been led to believe.

If smallpox comes into Maine by way of New Brunswick it comes from a state with a compulsory school vaccination law which includes teachers as well as pupils, and it comes into a state which has no similar law. Maine has reported an average of 270 cases of smallpox annually for the last 11 years or to be exact 2778 in all, 255 in 1913, 118 in 1923. New Brunswick had but 15 cases in 1923. In 1918, the 1st year of registration, she had 3794. Her present law dates from 1920.

Nova Scotia, not having reached the altitude attained by New Brunswick, has not achieved so dramatic a fall, yet the record here is 401 cases in 1918, 1343 in 1919, 2 in 1922, 15 in 1923. The school law has been on the books for some years but was not until lately thoroughly enforced. It looks a little as if there might be some question whether smallpox moved north or south on our northeastern frontier.

New Hampshire with its law covering public and private schools had but 241 cases of smallpox in 11 years while Vermont without such a law had 1202, 138 cases in 1913, 255 in 1923. Vermont's northern border is the southern boundary of Quebec. Vermont has 352,428 inhabitants, Quebec 2,361,199. In proportion to its population Vermont has 1½ times as much smallpox as Quebec and the smallpox incidence is increasing in Vermont, whereas it is diminishing in its northern neighbor.

Go now to the far West and we find Washington, with a specific provision in its state law prohibiting enforced vaccination, with 24,183 cases of smallpox in 11 years and British Columbia across an imaginary line, but with a school vaccination law, having 1288. Washington having twice the population and 19 times as much smallpox.

Montana and Manitoba are neighbors and of about the same population. Montana had 9861 cases of smallpox in the 11 years, Manitoba records 739 since 1918 when records were begun.

Our northern border is lined with states without adequate vaccination laws and is (I say it advisedly) reeking with smallpox. Washing-

ton, Montana, North Dakota which repealed its school vaccination law in 1919 and which in 11 years had 29,109 cases of smallpox, 17,209 of them in the 5 years after that repeal. Minnesota, which, in 1903, passed a law making it unlawful for "any board of health, board of education, or other public officer under any general law or city charter to compel or require by resolution, order, ordinance or procedure of any kind the vaccination of any child, or to make vaccination a condition precedent to the attendance at any school in Minnesota or to exclude any child or other person from attendance in any school, etc., etc."

Minnesota, which during the 11 years so often referred to had almost as many cases of smallpox among her 2,387,125 inhabitants as to be odious so I will make none.

I am not writing this article in an attempt to whitewash Canada.

Canada's 37,845 cases of smallpox are 37,845 too many but it is quite clear that there is less smallpox in Canada, man for man, than there is in the United States, that there are proportionally far more political divisions that have general smallpox laws than there are with us, that we are a menace to Canada rather than Canada to us and that if the Province of Ontario be ignored one is obliged to look to Massachusetts, Rhode Island and a very few other states to find a lower percentage rate of smallpox than that shown by our northern neighbors.

To escape the possibility of acquiring small-

Province	Population	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	Total
Alberta	496,525	192	89	72	8	215	371	101	536	1,043	68	62	2,757
Brit. Columbia	650,000	43	14	115	7	5	60	35	576	137	64	232	1,288
Manitoba*	553,860						108	19	134	205	173	445	1,084
New Brunswick*	351,889						3,794	274	485	118	157	15	4,843
Newfoundland†	264,569	87	0	1	0	26	142	148	0	0	0	0	404
Nova Scotia*	523,837						401	1,343	279	115	2	15	2,155
Ontario	2,933,662	744	511	626	174	225	435	3,046	5,169	3,772	977	339	16,023
Pr. Ed. Island	93,728	0	0	0	0	0	0	0	0	0	0	0	00
Quebec	2,361,199	1,154	2,124	129	97	374	356	898	387	377	55	166	6,117
Saskatchewan	647,835	598	392	49	6	120	97	141	390	961	266	154	3,174
Total	8,877,104	2,818	3,130	992	292	965	5,764	6,005	7,956	6,733	1,762	1,428	37,845
Number		7	7	7	7	7	10	10	10	10	10	10	

*Six years. †St. John's only.

came to light in all of the vast territory between Newfoundland in the East and the Island of Vancouver in the West between the United States and the North Pole, 35,152 to Canada's 37,845, Canada's population being 3½ times as large as that of Minnesota.

Wisconsin with no general law other than that requiring vaccination or quarantine of those exposed to smallpox. Wisconsin with her 29,109 cases of smallpox between 1913-1923. Ohio with no compulsory school vaccination law but with 51,913 cases of smallpox to its credit.

The border states report together 168,214 cases of smallpox, the Canadian provinces 37,845; 16,023 of these last reported by the Province of Ontario where vaccination is not a prerequisite to school attendance although attendance itself is compulsory. There is a law requiring the vaccination of all infants under the age of four months but the health officer writes me that for many years it has been a dead letter.

But before exhibiting Ontario as a possible example of what should not be let us look on our own side of the line for a state of equal population. There are but two, Georgia whose records go back but six years and which cannot therefore be used, and Indiana.

Ontario had 16,023 cases of smallpox in 11 years, Indiana 40,082. Comparisons are said pox citizens of Massachusetts should stay at home, visit Cuba and the Skandinavian countries, try Germany, Belgium and France, go to Porto Rico, the Canal Zone, Hawaii, or the Philippines but avoid the great West, the Southwest and the South or, if going, go vaccinated.

Russia and India have more smallpox than do we. China and Mexico may have but otherwise so far as I know our record is unsurpassed.

We have more automobiles and more telephones than other peoples, we also have more murders and we are near the top in smallpox incidence. It is so easy to suppress smallpox, it is such a simple matter to prevent its occurrence; the method has been so many times tried out with never a failure in over 100 years, that it is difficult to understand how a country that calls itself the most enlightened country in the world is contented to stand with Russia and India and China a prey to a disease that, were universal vaccination practised, would be as thoroughly wiped out as has been yellow fever, once the scourge of the South, reaching Nashville, St. Louis and even New York, now hanging raggedly to isolated spots in South America and soon apparently to be as obsolete as the Dodo and Mastodon.

The figures of the chart were obtained from the health officers of the various provinces and from the Medical Officer of Health of Newfoundland.

THE NEW ENGLAND PEDIATRIC SOCIETY

Abstracts of Papers Read at the Meeting, February 13, 1925

(Dr. Kenneth D. Blackfan in the Chair)

FAT ABSORPTION IN INFANTS

BY RICHARD C. TEFFT, M.D., BOSTON

(Abstract)

In an effort to determine accurately (1) the reaction of a human infant to large amounts of fat in the diet, (2) his ability to utilize large amounts of fat, (3) the reaction of varying amounts of fat in the diet on calcium absorption, (4) of calcium on fat absorption and (5) of both on the phosphorus absorption, a 4 months old infant was placed on a metabolism frame and fed very carefully controlled and analysed diets containing varying amounts of fat and calcium. Accurate determinations of the neutral fat, fatty acid, soap and calcium were made on the stools and daily determinations of the phosphorus excreted in the urine.

The amount of fat excreted, almost entirely in the form of soap, the amount of neutral fat being at all times negligible, increased steadily as the amount of fat in the diet increased, but the proportion of fat excreted to the fat intake remained approximately constant at about 10%, indicating that 90% of the fat taken in the diet was absorbed. When the calcium in the diet was very markedly increased these proportions changed to 15% excreted and 85% absorbed. The phosphorus excretion in the urine rose steadily with increase in the fat intake until the patient was on a milk mixture containing about 4% fat, after which it remained about constant despite increases in the fat. On this diet 55% of the calcium in the stools was excreted in the form of soap. With marked increases in the amount of calcium in the diet the excretion of phosphorus in the urine decreased rapidly, falling practically to zero on a diet consisting of fat free milk with approximately 20 gm. of calcium lactate added daily. Throughout the course of the experiment the calcium excretion in the stools was roughly 50% of the intake, indicating the probability that an equal amount of calcium was absorbed. This held when the calcium intake was varied from 0.88 gm. of calcium per day to 3.41 gm. of calcium per day. The only gastrointestinal disturbance in the course of the experiment was a diarrhoea occurring during one of the fat free periods. Throughout the experiment the baby gained at a rate somewhat greater than the average for hospital babies of this age.

As far as can be determined from a single case very carefully studied, the following conclusions are indicated:

1. The human infant can handle very large amounts of fat in the diet as efficiently as smaller amounts and is able to split practically all of the fat supplied.
2. About 10% of the fat intake is excreted. This is almost entirely in the form of soap, which constitutes, except on diets containing almost no fat, about 50% of the dried stool weight.
3. Increasing the calcium in the diet has relatively little effect on the fat absorption and increasing the fat has relatively little effect on the calcium absorption.
4. About 50% of the calcium intake is absorbed.
5. Increasing the fat, within certain limits, tends to increase the phosphorus absorption.
6. Increasing the calcium in the diet lessens the amount of phosphorus absorption and with very low diets may entirely inhibit it.

This is a preliminary report.

BLOOD CHANGES IN DEHYDRATION

BY DANIEL C. DARROW, M.D., BOSTON

(Abstract)

The content of water of infants' blood in various conditions has been the subject of study by a number of workers. Most investigators have been particularly interested in correlating changes in weight, whether a loss or gain, with changes in the water content of the blood. Reiss, in 1909, investigated this problem by studying changes in the refractive index of the blood serum by which means an approximate measure of the serum protein concentration can be obtained. In 1911, Berend and Tezner studied changes in the electrical conductivity, viscosity and refractive index of the blood serum. Lust, in the same year, studied the proportion of blood left by drying. More recently, work on this problem has been done by Utheim in Marriott's clinic. The results of all of these studies are fairly consistent and may be summarized in the following statements: (1), babies under one year of age show diminished serum protein concentration and a relatively increased water content of the blood; (2), the changes in weight during the first days of the infant's life are accompanied by corresponding changes in the serum protein concentration and the water content of the blood; (3), undernourished and artificially fed infants tend to exhibit a low serum protein concentration and a relatively high water content of the blood; (4), cases showing oedema show also a low serum protein concentration and a high water content of the blood; (5), cases with a diminished skin turgor and cases suffering from intoxication, such as those described by

Finkelstein, show an increased serum protein concentration, a diminished water content and an increased proportion of erythrocytes in the blood; (6), the viscosity of the blood tends to follow the level of the volumes percentage of red corpuscles; (7), values for the specific electrical conductivity of the blood serum do not vary in any readily analyzable way but one gains the impression that these tend to remain fairly constant or at least to show no constant variations with changes in the water content of the blood. As far as I have been able to ascertain, freezing point determinations on the blood of infants have never been made.

It seemed desirable to us to establish more definitely the changes occurring in the blood of infants under various conditions, especially with reference to three aspects not adequately treated by previous investigators, viz: (1), the extent of the blood volume change, if any; (2), the extent of the changes in the concentration of electrolytes that may accompany changes in the water content of the blood; (3), the magnitude of the changes that occur in the concentration of the crystalloids. Accordingly, we have studied some sixty cases, on blood specimens from whom we have determined (1) the serum protein concentration as measured by the refractive index, (2) the electrical conductivity of the serum, (3) the freezing point of the blood serum. In addition, we have determined the volume of the whole blood and the plasma, by the vital dye method, wherever feasible. The freezing point was determined by means of a thermo-couple which we have designed particularly for use where only small amounts of blood are available. We are convinced that this apparatus gives, with the use of 3 ml. of serum, results as accurate as those obtained from a Beckmann thermometer which ordinarily requires nearly 15 ml. of serum.

A tabulation of the results obtained from our study brings out certain very interesting facts. in the first place, taking as dehydrated those cases which showed an increased serum protein concentration, a diminished skin turgor and the ordinary symptoms, we find that both the freezing point and the specific electrical conductivity of the serum in such cases lie within the same general range of values as do those of normal individuals. Only two out of twelve cases of dehydration showed abnormally high values for electrical conductivity of the serum.

On the other hand, when one considers the blood volume values, striking changes are evident. All of the plasma volumes of dehydrated patients, except one, are found to be 45 ml. per kg. of body weight or less, whereas the values for all the normal cases are seen to be 50 ml. per kg. of body weight or greater. Three cases which some might consider as belonging within the normal range, showed values for plasma volumes from 45-50 ml. per kg. of body weight. But these cases, rightfully, must be considered as abnormal cases. One of them had received hydrochloric acid and this influnces the blood volume. Another case had lobar pneumonia and lobar pneumonia may cause lowering of the blood volume. The third case was one of bacillary dysentery which clinically did not seem to be dehydrated. Among the dehydrated cases, the exception referred to was a patient suffering from coeliac disease. This child had gained about a kilogram in weight in nine days and his plasma volume had increased from 320 to 360 ml. However, the gain in weight in the body itself was so great that the plasma volume expressed in milliliters per kilogram of body weight dropped only from 57 to 55. Perhaps the contrast between this case of coeliac disease and the ordinary dehydrated baby means that it is not without reason that these children have the reputation of exhibiting peculiar changes with respect to their weight curve and their water metabolism.

The changes occurring in dehydration are better illustrated by the five cases in which blood volume determinations were made both during the period of dehydration because of a lack of fluid intake during attacks of encephalitis. The changes in their plasma volumes were, in the one, from 477 to 570 ml. (39 to 49 ml. per kg.). One case of acute diarrhoea showed, when sick, a plasma volume of 276 ml. and on recovery, 434 ml., an increase from 43 to 62 ml. per kg. of body weight. This was a seven months' old infant who gained 500 grams during the days intervening between the two observations. A baby, one year of age, had had recurring attacks of diarrhoea and was admitted to the hospital severely dehydrated. He gained 500 grams in four days and his plasma volume increased from 200 to 340 ml. or from 40 to 62 ml. per kg. of weight. The fifth case coeliac disease has been commented on. None of these cases showed any important changes in the freezing point or electrical conductivity of the blood serum.

In cases on which two determinations are done within 10 days, the total amounts of serum protein and red cells are almost the same in the two determinations. This fact allows us to calculate the change in blood volume from the change in serum protein or red cell concentration if we know one of the blood volumes.

It must be borne in mind, that since the plasma usually loses more in water, proportionately, than the rest of the body the extent of the change in plasma volume is better represented by results expressed in absolute values than by those expressed in terms of plasma volume per kilogram of weight. One child lost as much as 35% of his plasma volume and subsequently recovered. It would seem that, in general, since undernourished infants have a low total

blood volume, although the plasma volume is high, the condition being really one of oligocythemic hydremia, they probably suffer a sufficient loss of blood volume during dehydration to cause alarming symptoms from this factor alone. In another case which we have studied, the total blood volume was actually less by 10 ml. per kg. of body weight than the plasma volume alone should have been for an infant of that age. The case was one of anemia which showed also dehydration resulting from diarrhoea and the dehydration could not be relieved until a transfusion of blood was given. The presence of a certain minimum number of red corpuscles is necessary in order to maintain an adequate blood volume.

Blood volume determinations were done on two cases of renal disease with oedema. Both showed marked albuminuria. One of the cases corresponded to the type of case called by Epstein, nephrosis. Both showed marked decrease in the plasma volume relative to body weight. One might infer that, in reality, this was only an apparent decrease, due to excessive storage of water in the tissues. But the diminution was such that the plasma volume per kg. of body weight amounted to only 29 ml. in the one and 28 ml. in the other, values too low to permit being accounted for reasonably on the basis of a storage of water in the tissues. There must have occurred not only a great relative but also an absolute decrease in plasma volume.

From our observations the following conclusions may be drawn.

1. In cases of dehydration the loss of plasma volume is usually greater, proportionately, than the loss of weight by the rest of the body.

2 In cases of dehydration, generally speaking, no important changes occur in the freezing point or the specific conductivity of the blood serum. Indeed, except for the diminution in the total blood volume and the plasma volume, there is very little abnormal about the blood of these dehydrated infants. Of course, these methods can tell us little about the quantitative disturbances relating to particular dissolved substances in the blood.

A THEORY CONCERNING THE TRANSFUSION OF WATER

BY THOMAS E. BUCKMAN, BOSTON

(Abstract)

Following the demonstration by Starling in 1896 that the proteins of the blood plasma exert a definite osmotic pressure (30-40 mm. Hg) the theory has been elaborated that the resorption of water from the lymph spaces surrounding the capillary meshwork can be accounted for by the fall in the hydrostatic pressure of the blood. For, assuming that the capillary walls are permeable to all dissolved substances except the colloids and, letting

l=the osmotic pressure exerted by colloids of the lymph.

p=the osmotic pressure exerted by colloids of the plasma.

a=the hydrostatic pressure of the blood on the arterial side and

v=the hydrostatic pressure of the blood on the venous side, then, on the arterial side of the capillary meshwork,

$p-a<l$ and a transfusion of water into the lymph spaces occurs and, on the venous side of the capillary meshwork,

$p-v>l$ and a transfusion of water into the blood occurs.

Although such a mechanism may account for a certain amount of water resorption it is our purpose to show that another possible mechanism might reasonably be expected to influence not only the resorption of water from the tissues but also the elimination of water in the lungs.

The basis of our conception is the series of events occurring when blood is exposed to varying tensions of carbon dioxide and oxygen, in particular, the increase in the freezing point depression of the plasma and the diminution of the chloride content of the plasma that occur as the carbon dioxide tension to which the blood is exposed increases. The change may be represented by the equation:

$$RNH_2+NaCl+H_2CO_3=RNH_2HCl+NaHCO_3$$

In this equation, the expression, RNH_2 represents the free amino-groups of the proteins of the corpuscles. (Corresponding reactions probably take place also within the cells and within the plasma.) The plasma loses sodium chloride and gains sodium bicarbonate. The cells gain hydrochloric acid in the form of amino hydrochloride. But sodium bicarbonate and sodium chloride are about equally dissociated whereas amino hydrochloride is more dissociated than the amine. The net result is a gain in particles by the cells while the plasma suffers no change. Following this, water flows into the red cells from the plasma; the volume of the corpuscles increases; the plasma becomes more concentrated.

In vitro, the increase in the concentration of the plasma with increasing carbon dioxide tension is readily demonstrable; in the body, venous plasma shows a very much smaller increment in concentration over the concentration of the arterial plasma than would be expected from a consideration of the increment resulting, in vitro, from an increase in carbon dioxide tension corresponding to the difference between the carbon dioxide tension of tissues and lungs. Presumably, in the body, water flows into the venous plasma to restore the

equilibrium and presumably, also, the reverse change occurs in the lungs. At least, in either case, the conditions are favorable for such a transfusion of water.

The increment in the concentration of crystalloids in the plasma with increasing carbon dioxide tension is proportional, generally, to the increment in the bound bicarbonate content of the plasma. The shape of the carbon dioxide curve, in a given case, thus influences the transfusion of water.

The level of the bound bicarbonate content of the blood at any given tension of carbon dioxide, among other factors, influences the shape of the carbon dioxide dissociation curve. There appears to be an optimum initial content of bound bicarbonate for the production of the greatest increase in concentration of crystalloids in the plasma as the blood passes from an atmosphere corresponding to that in the lungs to conditions of gaseous tension obtaining in the tissues.

As the level of the bicarbonate content of the blood sinks, hypocarpnia (compensated acidosis), provided it does not fall too far, the gradient of the curve is increased and conditions become especially favorable for the resorption of water and dehydration may result. On the other hand, as the level of the bicarbonate content of the blood increases, hypercapnia (compensated alkalosis), the gradient of the curve diminishes and conditions for the resorption of water may become so unfavorable that oedema is evident.

For another reason, apparently, a flattening of the dissociation curve occurs in severe anemia, and, in such cases oedema frequently results.

But it is not only changes in the shape of the carbon dioxide dissociation curve that may influence the resorption of water. If, for any reason, the normal difference between arterial and venous gaseous conditions is not maintained, then, even with a curve of normal gradient, conditions may become so unfavorable as to result in oedema. This, apparently, is what happens in lobar pneumonia, and there is reason to believe that such a state of affairs may obtain in cardiac decompensation.

It is pointed out, that in the light of this conception, it would be of interest to reëxamine the problem of dehydration in infants and also such problems as the elimination of water by the kidneys, the absorption of water from the gastro-intestinal tract, the secretion of hydrochloric acid by the stomach, the influence of calcium chloride on oedema, etc.

DR. TALBOT: Discussion of Dr. Tefft's paper.

I think the fact that large amounts of fat can be and was given to this child without doing any harm is a very interesting thing, because the impression around this community has been that it was not safe to give such large amounts of fat. I remember when I was first in practice that many children were given six to eight per cent fat over long periods and they apparently did well. Once in a while they would have upsets, which were given the name of "fat blow ups." I think these upsets were due to an infection which came on which upset them slightly.

DR. GAMBLE: Discussion of Dr. Tefft's paper.

I think this paper of Dr. Tefft's is very interesting as regards fat absorption.

I should be interested to know if Dr. Tefft found any calcium in the urine.

DR. BLACKFAN: Question raised in connection with Dr. Tefft's paper.

I wish to ask whether any Karo was added to these fat free diets?

DR. TEFFT (in closing).

In some of these children who were on fat free diets, three ounces of Karo were added to a thirty-ounce mixture.

We did not do any calcium tests on the urine. We would have done it, despite the fact that it is a pretty difficult procedure, had we had any idea that our results were going to turn out so interestingly.

DR. BLACKFAN: Discussion of Dr. Darrow's paper.

It seems to me that this might be an opportunity for some of us to ask questions. Such a careful study of dehydration is of intense interest to many of us. There are, as we know, a number of clinical features in the dehydrated child which have been greatly confused.

I think Dr. Darrow might have told us something about the relative value of transfusion and also the treatment of these dehydrated children. He obviously had an opportunity of studying that phase of the condition.

DR. HAMILTON: Discussion of Dr. Darrow's paper.

I notice in this paper that the calcium chlorides were nearly normal in all cases.

Is vomiting an important symptom in causing dehydration?

DR. TALBOT: Question on Dr. Darrow's paper.

I wonder if there was any evidence of acidosis in these cases?

DR. DARROW: (In closing).

I think three or four cases in my series had vomiting.

As regards treatment, whole lactic acid milk with sugar were given and subcutaneous salt solutions were also given. In the severe dehydrated cases, they were given intravenous glucose.

Two or three cases which I showed you this evening did have acidosis, but it was not a prominent symptom.

Case Records of the Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY
RICHARD C. CABOT, M.D., AND HUGH CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 11211

MEDICAL DEPARTMENT

AN American housewife of forty-three was sent from the Emergency ward February 10 for study of anemia. The chief complaints were weakness, pallor and loss of strength. The history was given by her husband, and was unimportant until the present illness.

Five years before admission she began to feel weak and tired and developed generalized pains and aches, most severe in the neck, spine and hips, but soon involving the shoulders and arms. The pains were darting, piercing, and tended to shift from joint to joint with changes in the weather, diet, etc. Fish and tomatoes seemed to exacerbate them. Constipation or diarrhea also made them worse. Her joints were tender and slightly red but not swollen. Her hands and feet occasionally were swollen but not red. Her muscles were very tender. In the autumn after the onset her fingers became so stiff that by winter she was unable to close her fist. Massage relieved the tenderness but not the stiffness. Her bowels were regular except on rare occasions, when they were promptly emptied by Epsom salts. Since her physician advised against catharsis regular movements had been controlled by diet and habit. From the onset until a year before admission bunchy swellings (bursae?) appeared on various joints, hard, not firmly attached, slightly red, not always painful. In the winter following the onset she became very pale, weak and bedridden. Her physician could make no diagnosis. Four months later she gradually recuperated and by summer was able to sit up. Another physician prescribed pills, country and sunshine. She rapidly regained strength and was able to go about a bit. During the next year she had her upper teeth removed. Several pus sacs were found. She saw various physicians, who usually gave her iron and arsenic. From three years until the spring before admission she regained strength, and except for swelling in the hands and some pains in the joints and muscles felt quite well. Eight months before admission she broke down from overwork. Pains and swelling of the joints returned and she became semi-bedridden again. About this time her physician noticed irregularity of the heart beat and prescribed digitalis. The irregularity persisted in the autumn. Six months before admission she had all her lower teeth extracted and several pus sacs removed. After this she went downhill and became very weak. A month later, November 15, she went to a Boston hospital. This hospital reports that examination showed swelling and stiffening in the joints, especially in the fingers of the left hand and in the knees, and limitation of movement in almost all the joints. Pelvic examination and clinical pathology were negative. X-ray studies of the sinuses were reported negative. There was no history to suggest disease of the gall-bladder or of the appendix. November 22 she was discharged with a diagnosis of chronic infectious arthritis, and advised to take iron, massage and bakes. Soon after this a rash or roughening of the skin over the joints developed and persisted until the first of February. The redness and pain in the joints gradually subsided. Baking and massage made the pain bearable but did not cure it. Ever since the present illness she had been troubled by belching gas, distension and some pain in the epigastrium with a sensation of a lump between the shoulder blades. Bicarbonate of soda and milk had relieved the heartburn and sour eructations but not the gas. Since the discharge from the hospital she had had no eructations or burning. She was apparently doing well until February 4, when she began to vomit more and more often everything eaten. The vomitus was greenish. She had been fed by rectal tube. Since February 6 she had vomited a great deal and had been very thirsty and unable to keep down water or anything else. She had vomited brownish fluid and loose flabby masses which her husband was certain were not semidigested clots. During the last few days she had become very pale and weak. The night before admission Dr. Minot found 900,000 red blood corpuscles and a high leucocyte count. She was immediately transfused and given morphia for the first time. Since the transfusion she had felt much better and was able to retain food and water.

Examination showed a fairly well developed and nourished woman looking acutely ill. The skin was pale, with a yellow-greenish tint, the cheeks a little flushed. Marked pallor of the mucous membranes. Sclerae subicteroid. Apex impulse of the heart felt in the fourth space 7 cm. to the left of midsternum. No enlargement to percussion. Rate rapid. Sounds distant, of fair quality. Pulmonic second sound accentuated and split at the apex. A high pitched blowing late systolic murmur. The blood pressure was 105/60—73/41—105/62. A few inspiratory clicking râles at the left apex in front and some medium crackling inspiratory râles at the right base in the axillary line. The costal angle was narrow. The abdomen was full below the level

of the umbilicus. The ascending colon was palpable. There was marked gurgling. Pelvic examination showed fullness in both vaults. The shins were slightly roughened. The pupils were normal, the knee-jerks absent.

The temperature was 98.4°-102.1° with a terminal drop to 97.1°. The pulse was 140 to 82, the respiration 42 to 19. The amount of urine was normal when recorded, the specific gravity 1.010 to 1.028. The urine was cloudy at two of eight examinations, alkaline at one, showed the slightest possible trace to a slight trace of albumin at three, occasional leucocytes at five. No Bence-Jones protein was found at three tests. The renal function was 20 to 30 per cent. The hemoglobin was 45—55—20 per cent., the reds 1,640,000—2,728,000—820,000, the leucocytes 34,400—10,000—14,600. At entrance the polynuclears were 75 per cent. The reds showed many achromic cells twice the normal size, polychromatophilia, many large basophils, no macrocytes or tailed cells; reticulated cells 15 per cent., platelets normal. February 11 polynuclears 82 per cent., considerable variation in size and shape; achromia and polychromatophilia; platelets decreased; 13 normoblasts seen during 100 cell count. February 15 polynuclears 88 per cent., marked polychromatophilia, rare tailed cells; many macrocytes; reticulated cells 30 per cent.; platelets markedly increased and slightly larger than usual. Much reticulum seemed to be cast out of cells and free in plasma. Many large red blood cells, most of which contained reticulum. Smear otherwise similar to the last. Wassermann negative. Three blood cultures negative; one showed staphylococcus albus. Serum dilution February 14 1:40, very small clot; March 11 1:90; March 14 1:54. Van de Bergh test March 14, direct test, slightest possible trace after half an hour; indirect test strongly positive immediately. "These findings indicate a hematogenous jaundice without any liver involvement." The stools showed guaiac negative at fifteen tests. On X-ray examination both antra appeared abnormally dense, otherwise the sinuses apparently not abnormal . . . . No evidence of pathology in gastro-intestinal tract or long bones. . . . Considerable increase in the lung root shadows and clouding along the bronchial distribution extending from them. The extreme apices on both sides appeared dull. The left side of the chest appeared slightly less radiant than the right, especially in the upper portion. A peculiar irregular shadow overlay the left clavicle and upper border of the scapula, apparently an artefact. Throat consultation: "Polypoid degeneration right ethmoid region. All sinuses transilluminate clearly. If no other focus of infection found and if the general condition warrants it I suggest removal of the polypi and irrigation of the antra." A surgical consultant reported, "I cannot find any evidence of pelvic pathology either on vaginal or rectal examination. The history does not suggest salpingitis. The abdomen suggests to me only moderate distension with possibly a little fluid."

February 15 530 c.c. of blood was given by medical transfusion, raising the hemoglobin from 35 to 55 per cent. and the red count from 1,600,000 to 2,530,000. February 18 the temperature was down. February 22 and 23 the patient became worse. February 27 by digging a mass could be felt in the region of the cecum, not felt previously, possibly fecal. There had however been constant flatness in this region. That day another medical transfusion of 500 c.c. was done, raising the hemoglobin from 30 per cent. (February 25) to 55 per cent. and the red cells from 1,120,000 to 1,190,000. March 9 the patient looked very ill and the red count was down to 900,000. That day surgical transfusion of 500 c.c. was done. The red count rose to 1,580,000, the hemoglobin from 35 per cent. to 55 per cent. The liver did not appear small. The patient was nauseated and vomited everything taken except small amounts of milk. The milk vomited had a disagreeable odor and was golden brown and finely curdled. It was learned that she had taken large amounts of patent medicines, tonics, cough syrups, bromoseltzer, and medicines for arthritis, including twelve to eighteen boxes of Weldona, which she stopped in July.

March 13 another surgical transfusion of 500 c.c. was given. March 15 the left antrum was washed out and a cubic centimeter of thin yellow pus obtained.

March 20 she complained of pains in the left leg. The lower leg was swollen, with slight flexion of the knee and tenderness in the popliteal space. There was no redness or palpable thrombosis. March 24 the entire left leg was larger than the right, not tender, red or hot. The patient grew very weak and began to vomit again. Her blood agglutination reactions were so abnormal that it was hard to find donors for transfusion. March 29 she died.

Discussion

by dr. richard c. cabot

notes on the history

1. This is the sort of clinical picture which is very common in practice and about which there is very little that is satisfactory in medical books. I suppose this would be called a chronic arthritis. It is not an arthritis, properly. It is in the muscles also. There are shooting pains which we cannot properly connect with the joints. Yet it is not a neuritis. I do not think that we really have any name for it. Such cases go to the orthopedists generally and they are not very particular about names. I should say it

is a pretty open country for anybody who wants to describe a new disease.

2. In any case that starts with the diagnosis of anemia as this does, when the patient goes down and comes up again as this patient has, we begin to suspect the type of anemia we call pernicious, because the other types do not without any good reason get better and then grow worse as this type does. So already I am beginning to suspect pernicious anemia. We have to remember that there was a three-year interval during which she felt well.

3. I do not believe her breakdown was from overwork.

4. This is the amount of success that we should expect from that popular but ill-advised move on the teeth.

5. They are going over every focus they can think of, looking for a focus of infection.

6. A high leucocyte count does not go well with a diagnosis of pernicious anemia. 900,000 cells does.

NOTES ON THE PHYSICAL EXAMINATION

1. "Well developed and nourished" goes along with pernicious anemia better than with any other type, because secondary anemia is usually due to some cause that produces emaciation.

2. In anemia we can get everything in this heart examination without any lesion in the heart.

3. These very low blood pressures are found in pernicious anemia as well as in many other diseases.

4. Cord disease of one kind or another giving absent knee-jerks or sometimes increased knee-jerks is the rule in pernicious anemia.

5. There was no albumin at five examinations of the urine. I see no reason to suppose any disease of the kidney.

6. If we take the forty-five per cent. hemoglobin as going with the 1,640,000, as I suppose we may, that is a distinctly high color index. Fifteen per cent. of reticulated cells is very high; thirty per cent. is tremendously high.

7. The staphylococcus albus is presumably from contamination.

8. The serum dilution test shows blood destruction going on in all probability. It is a way of measuring the degree of jaundice. Serum dilution is normally about one to fifteen. These tests show from three to five times the normal amount of bilirubin in the blood, which is pretty good evidence of destruction.

I do not know what the Van de Bergh test is.

A PHYSICIAN: It is a differential between a jaundice of hepatic origin and one of hematogenous origin. There are two kinds of reaction, the direct and indirect. A direct reaction is indicative of jaundice from cirrhosis of the liver or carcinoma of the liver. The indirect reaction or so-called late reaction is obtained when the color appears within half an hour or longer. In that case it is a hemolytic type of jaundice.

DR. CABOT: In other words it is a test to find out whether we have blood destruction, and the delayed positive reaction means that we have.

A PHYSICIAN: Yes. Here it means the jaundice of blood destruction.

DR. CABOT: 9. Feeling the ascending colon and hearing a lot of gurgling one might think of cancer of the intestine, and we might miss that with the X-ray. Ordinarily cancer in the large intestine we can get some X-ray evidence of, but in the small intestine we miss it almost every time because the bismuth goes through so quickly.

10. The clouding and shadows at the lung roots probably do not mean anything. There may be an old tuberculosis at the apices. I do not believe there is anything active.

11. There is a lot of negative evidence here as to foci of infection as possible causes of anemia. They are doing the right thing and hunting as hard as they can for removable foci, but they have not found them.

What is the difference between "medical" and "surgical" transfusion?

A PHYSICIAN: Medical transfusion is the direct transfusion of blood by syringe. In "surgical" transfusions they use Vincent tubes and generally cut down on a vein. Medical transfusion works just as well as the surgical. We get the same result from either one.

DR. YOUNG: Why is a surgical transfusion ever done on a case like this?

A PHYSICIAN: Sometimes the person is in collapse and we cannot get into a vein.

12. DR. CABOT: I do not believe that any of these patent medicines had the slightest influence on this case.

DIFFERENTIAL DIAGNOSIS

This certainly is a puzzling case. The question is, is it pernicious anemia or isn't it? That pus from the antrum, the persistent high white count, the terminal thrombosis (I suppose) in the leg, are none of them characteristic of pernicious anemia. At the same time I do not see why the blood count should stay down so persistently if it was not pernicious anemia. The history certainly strongly suggests it. She had a bad anemia twice before, she had a three-year remission. We do not expect little foci of pus in an antrum or elsewhere to produce any such anemia as that. We have no evidence of large foci of sepsis or of malignant endocarditis such as we do know to produce grave anemias. Nor is there any evidence of malignant disease, of nephritis, of syphilis, of intestinal parasites or of other cause for anemia that I can think of.

The blood during the last part of the time is fairly typical—never exactly typical; but the

symptoms are not typical. There are a good many things we should like to know. There is nothing said about the tongue, for instance. In secondary anemias we rarely see a sore tongue; in pernicious we usually do. Nothing is said about the fingers and toes. The numbness which we often get in pernicious anemia is not common in secondary anemia. On the whole I think nothing else is as probable as pernicious anemia, and I shall make that diagnosis considering that the foci of pus, etc., were secondary lesions which probably caused her arthritis but not her anemia. I never saw so high a reticulated cell count, if it really was thirty per cent., in any anemia.

A PHYSICIAN: We usually think it comes after hemorrhages. I have seen a couple of cases of hemorrhagic anemia so-called. I think I have seen forty per cent.

DR. CABOT: The high polynuclear count is the point distinctly against pernicious anemia. I have never seen it in pernicious anemia without complications. She certainly had a complication in that pus in the antrum. Whether that on top of pernicious would produce leucocytosis I do not know.

DR. EDWARD L. YOUNG, JR. Is that amount of blood destruction unusual?

DR. CABOT: No. We expect blood destruction in pernicious anemia.

DR. YOUNG: I meant the rapidity of recurrent anemia after transfusion.

DR. CABOT: Yes, that is what we expect. The count often goes right down like this.

A PHYSICIAN: Would you consider a so-called acute bacterial endocarditis?

DR. CABOT: I have considered it, but I think that we have not enough evidence to diagnose it. She has had fever, but not steadily. She has no murmurs of the type we almost always get, and she has had no good evidence of embolism. The terminal trouble in the leg does not seem like embolism, but more like thrombosis. I should say we ought to consider endocarditis, but ought to rule it out.

A PHYSICIAN: Is grave anemia in acute rheumatic fever rare?

DR. CABOT: It is rare. I do not say it never happens. But she did not have acute rheumatic fever. Chronic joint trouble is not rare at this age. I think she certainly had it. But if the local lesions that we know of in this patient can produce such an anemia as this it is new to me.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Hemolytic anemia.
Sepsis, secondary, from sinus infection.

DR. RICHARD C. CABOT'S DIAGNOSIS

Pernicious anemia.
Secondary antritis.

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesion*

Pernicious anemia.

2. *Secondary or terminal lesions*

Hyperplasia of bone marrow.
Hypertrophy of the heart.
Hypertrophy of the spleen.

3. *Historical landmarks*

Chronic pleuritis.
Slight chronic perihepatitis and splenitis.
Fibromyoma of the uterus.

DR. RICHARDSON: The anatomical evidences in this case are rather clear and distinct. Insofar as the sepsis goes, the left lower extremity was swollen and did not pit. No examination was allowed, but in considering it with the stated abscesses of the teeth and antrum they might very well go together. We were not permitted to examine the head.

She was well developed, fairly nourished. There was a fair amount of subcutaneous fat, lemon-yellow. The muscles were pale. The abdomen was not distended. The mucosa of the stomach was flat and pale.

There was chronic pleuritis on each side. The mucosa of the trachea and bronchi was pale. The lungs showed a slight amount of edema.

The heart weighed 420 grams, considerably enlarged. The valves were negative and the circulatory apparatus elsewhere negative.

DR. CABOT: Was there any fat in the heart?

DR. RICHARDSON: No definite faded leaf or tiger lily markings. The myocardium was pale, the fluid blood was pale. The clots were pale brown. So far as I was permitted to examine the femoral vessels I found nothing in them. From the appearance of the swollen left lower extremity I should be inclined to believe that it was thrombosis.

The liver tissue was pale, the gall-bladder and bile-ducts negative. The bile was rather thick and sticky. The pancreas was pale, the spleen considerably enlarged, with plump brown-red tissue, otherwise negative. The uterus was enlarged and presented a small fibroma.

The bone-marrow of the right femur was abundant, filled the cavity, and was dark raspberry red. The bone-marrow of the vertebrae was brown red. In the hyperplastic bone-marrow were many nucleated reds, some megaloblasts, and the general picture of pernicious anemia. Anatomically it seems to be a pretty good picture of pernicious anemia.

DR. CABOT: Could you get a marrow like that from secondary anemia?

DR. RICHARDSON: Sometimes in severe secondary anemia marrows will look something like this one macroscopically

DR. CABOT: You did not find any foci of sepsis anywhere?

DR. RICHARDSON: Nowhere that I was permitted to examine.

CASE 11212

CHILDREN'S MEDICAL DEPARTMENT

An eleven-months-old baby girl entered January 15 for relief of vomiting of over a month's duration.

She was normally delivered at full term and weighed seven pounds and a half at birth. She was breast fed for six months. In August she had an attack of vomiting lasting three days, accompanied by fever of 102°-103°. She was taken off the breast and put upon a formula of eighteen ounces of barley water, twelve ounces of whole milk, and one tablespoonful of dextri-maltose, six feedings of four or five ounces. Gradually the midnight feeding was eliminated and the milk increased to five and a half ounces plus two and a half ounces of barley water five times a day plus one tablespoonful of dextri-maltose. The milk was not pasteurized or certified, and never boiled. The water was boiled.

For five months the mother had seen gravel in the child's urine about once a week. The urine was thick, dark and smelled of ammonia. December 21 the baby was given a formula made of milk which had been frozen. Two hours after the second feeding she became restless, and an hour later screamed as if in intense pain and was pale and spastic, with fixed eyes. An enema was given, and half an hour later an emetic of salt and water. She immediately vomited a large amount of white sour-smelling curds. The screaming and spasticity immediately stopped, but she was still restless and her heart pounded so that it was easily audible at a short distance. That night her temperature was 105°. It continued to be high in the evening until the five days before admission, when it had been normal. The day after the onset the child vomited everything. That day she was starved, and the following day was given skimmed milk, which was gradually worked up to whole milk diluted with barley water. Her bowels did not move for the first three days in spite of enemata and magnesium sulphate. On the third day an enema was productive of much gas and some fecal matter. Her bowels had not moved normally since that time. She had had an enema every day for the past ten days. There had never been any blood in the stools. For one day at the beginning of the illness her skin looked yellow. Since the onset there had been several days in which there was no vomiting. Then she would begin to vomit everything for a day and a night. Four days before admission she began to vomit and had continued to do so at intervals. The day before admission she vomited every fifteen minutes, even water. Since three o'clock the morning of admission she had not vomited. Since the onset of the vomiting the urine had shown gravel every day. For the past five days there had been strangury and blood toward the end of urination. The child writhed during micturition as if in pain. She had lost about five pounds.

Examination showed a well developed, poorly nourished baby, extremely dehydrated. The skin was dry and inelastic. The eyes were sunken and the features prominent. When she was let alone the eyelids were half closed and the eyes rolled up. There were no teeth. On looking into the pharynx the epiglottis was seen standing up prominently at the base of the tongue. The abdomen felt doughy and was sunken, the ventral wall nearly approximating the posterior wall. The extremities were thin and flaccid. The radius was rather wide at the wrist joint. The knee-jerks were not obtained.

The temperature was 100.2° to 107.2°, the pulse 140 to 210, the respiration 24 to 49, all with wide swinging. The hemoglobin was 75 per cent., the polynuclears 69 per cent., the small lymphocytes 27 per cent. The reds appeared normal.

The child was given fluids subcutaneously and intraperitoneally. Lavage was performed. About half past four the morning after admission the temperature began to rise. At nine o'clock that morning she died.

DISCUSSION

BY DR. FRITZ B. TALBOT

NOTES ON THE HISTORY

The fact that the milk was not pasteurized or certified points the suspicion that it may not have been free from the tubercle bacillus. It does not mean, on the other hand, that the chances were very great that the tubercle bacillus was in it.

There is at times considerable suspicion that frozen milk may upset the digestion of infants. So far as I know there has never been any absolute proof that it does so. But as a matter of precaution during the winter I always advise against giving frozen milk to young infants.

This is an extremely unusual history. Urinary gravel in infants is very rare. As we look through the history of the immediate illness the prominent features are vomiting, constipation, and finally dehydration. I cannot see why gravel in the urine should cause vomiting, and so it makes us consider the different causes of vomiting as the background of the disease here. First in infants of this age we always think of cerebral vomiting, usually due in the spring and winter to tuberculous meningitis. We have no positive evidence, but we have the suggestive

fact that the milk was not boiled. There is nothing else, however, that is at all suggestive except the impression given by the history that the vomiting was not definitely connected with food. If it were vomiting of gastro-intestinal origin the various surgical conditions such as intussusception and volvulus must be ruled out. The fact that fecal material was passed after the vomiting at the onset would seem to rule these out. But it does not always rule them out, because the intussusception may be high. Intussusception however would not have lasted for a month and would not have let up. The history suggests that the child was able to retain food on various days.

NOTES ON THE PHYSICAL EXAMINATION

An abdomen which allowed the finger to feel over the backbone practically rules out intussusception, because there we expect to feel gas and distension above the point of intussusception.

DIFFERENTIAL DIAGNOSIS

With the exception of congenital abnormalities of the kidney we do not have to think seriously, in cases of infants, of the usual kidney diseases.

Finally the vomiting infection, which some people call acidosis and others call grippe and others by other names, must be considered. It cannot be ruled out, and must be kept under consideration.

The child was sick because it was vomiting. The child became very sick because the vomiting became severe enough to cause dehydration. Why did the child die? I do not know. I see no reason why urinary gravel should make a child die. So that we have to come back to a symptom as an explanation of death. Vomiting and acidosis are symptoms, and yet vomiting can cause starvation and starvation can cause acidosis, and acidosis and dehydration combined can cause death. So we have to satisfy ourselves with a diagnosis of symptoms. My diagnosis would be urinary gravel, vomiting, dehydration, and acidosis.

DR. CABOT: What is the evidence of acidosis?

DR. TALBOT: There is no evidence here. The reason I say acidosis is that acidosis is practically always present when there is dehydration and practically always present in prolonged fasting from vomiting. The acidosis may be compensated, without symptoms, or it may be decompensated and have the symptoms of air-hunger and cherry-red lips. They were not noted here. If we accept the opinion of Dr. Lawrence J. Henderson we can say that acidosis is just as common a symptom as fever. So I am probably pretty safe in saying that there was some degree of acidosis.

DR. CABOT: Is there any point about the epiglottis sticking up that way? Is that what it always does in a dehydrated child?

DR. TALBOT: I don't know why it was put into the history, nor do I know why the radius was put in. That may be meant to suggest rickets.

DR. CABOT: I suppose so.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Malnutrition.
Dehydration.

DR. FRITZ B. TALBOT'S DIAGNOSIS

Urinary gravel.
Vomiting.
Dehydration.
Acidosis.

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesions*

Nephrolithiasis.
Hydronephrosis, left kidney.
Hydronephrosis, right kidney, with perinephric abscess and small abscesses of the kidney.

2. *Secondary or terminal lesions*

Slight cystitis.
Concretions in ureters and bladder.
Two ulcers, left kidney.

3. *Historical landmarks*

Slightly defective closure of the foramen ovale.

DR. RICHARDSON: The peritoneal cavity was moist. The peritoneum, appendix and gastro-intestinal tract were negative.

What lesions were present were found in the kidneys. The right kidney weighed twenty-two grams. The capsule was weakly adherent in places and infiltrated with purulent material. The surfaces were somewhat irregular, coated with purulent material, and showed in places small abscesses. The perirenal tissues were infiltrated with purulent material and there were a few abscesss in the upper pole of the kidney. These pus-infiltrated perirenal tissues were continuous with a small collection of pus resting between the kidney and the inferior surface of the right lobe of the liver. These were walled off by a pyogenic membrane. In this kidney the pelvis and calices were moderately dilated. There was a little hydronephrosis, some blunting of the apices of the pyramids. The pelvis of the kidney contained a small amount of fluid, not purulent, and the mucosa was negative. In the pelvis and calices were several minute brownish concretions which measured up to

three mm. The ureter was generally dilated, two and a half cm. in circumference, and contained thin pale cloudy fluid. The mucosa was negative. There were several concretions in the ureter measuring up to three mm. Where the ureter opened into the bladder the diameter was one mm., and immediately above that point the dilatation of the ureter began. A stone then of three mm. would obstruct at that point.

The left kidney weighed fourteen grams. The capsule stripped. In this kidney there remained only a narrow rim of kidney tissue three to five mm. thick, and this rested over dilated calices and pelves. This kidney had two pelves, a small one in the region of the upper pole and a larger one draining the region of the lower two-thirds. There were two ureters, one from the upper pelvis and one from the lower. They passed down through the bladder wall, one of them, the upper, ending blindly in a sac protruding into the bladder cavity, the other passing through the wall of the bladder and opening as usual. It was about the same size as the one on the other side. The ureters were generally dilated, 2.5 cm. in circumference—mucosa negative. There were double ureters then on the left, one ending as a blind sac in the bladder. In the ureter from the lower pelvis there were concretions.

The bladder showed a slight amount of cystitis and innumerable minute yellow concretions.

DR. CABOT: Reading this in the order of pathological evidence should you say that the first thing was stones, the second thing was a blocking of ureters, the third thing was a consequent malnutrition of the kidneys with infection, the fourth thing was hydronephrosis on one side and abscess on the other, the whole process starting from stones in your opinion?

DR. RICHARDSON: Yes, that seems the more likely order of events.

DR. CABOT: It was the blocking of the open ureter by a stone that did the harm?

DR. RICHARDSON: Yes. The ureter was one millimeter at its lower end on each side and three millimeter stones would obstruct.

DR. CABOT: Do you suppose the infection around the right kidney was the cause of the acidosis and vomiting, or that the vomiting could be called uremic?

DR. TALBOT: I am more inclined to think the vomiting was due to the infection.

DR. CABOT: Suppose you had examined the urine in this case, would it have done any good?

DR. TALBOT: I think it should have, yes.

DR. CABOT: Of course the child was here a very short time and there was very little chance to get a specimen.

DR. TALBOT: When they don't get a sample it makes one think that perhaps the urinary output was low.

CASE 11213

SURGICAL DEPARTMENT

An American widow of seventy-four, housekeeper for a friend and his son, entered January 8 complaining of pain in the right upper quadrant. Her father and mother both died of "shock," her husband and one sister of tuberculosis. Forty years before admission she had a fissure in ano, somewhat relieved by operation. A fistula in ano developed and had discharged since that time. Ten years before admission she had an attack of rheumatism confining her to bed for a month, and at the same time "eczema" on the legs. She had had attacks of "indigestion." For four years she had had dyspnea on exertion. A year before admission her physician gave her tablets for her heart, but she knew nothing of any heart trouble. She was occasionally incontinent of feces. The summer before admission she had pruritus ani.

Two weeks before admission she had a cold in the head and throat which later went into the chest, giving her severe cough. January 6 at midnight sharp colicky pain developed in the epigastrium radiating to the left shoulder and back, doubling her up and accompanied by nausea and vomiting of food. The pain was relieved after twenty-four hours, during which three opiates were given. The nausea was somewhat relieved by the vomiting, but soon recurred. She had been unable to retain anything except lime water, and had been troubled by gaseous eructations of a disagreeable taste. The morning of admission she had another severe attack of epigastric pain which rapidly descended into the right upper quadrant as low as the navel. She had vomited a little. The day of admission she noticed for the first time that her arms were yellow. Since the onset of the illness her bowels, ordinarily regular, had been very constipated. January 7 her physician said her urine was cloudy.

Examination showed an obese, sick, jaundiced old woman having spasms of pain two or three times an hour. The skin showed scattered small wheals surrounded by half an inch of erythema, resembling mosquito bites. The sclerae were jaundiced. The anterior cervical glands were palpable. The chest was hollow. The heart dismensions are not recorded. The sounds were faint, the action regular. The pulses were of hypertensive quality. The blood pressure was 170/90. The abdomen was somewhat distended. There was acute tenderness below the ribs on the right and moderate tenderness in the whole right abdomen with spasm of the upper end of the right rectus. It was impossible to say whether a mass was felt below the costal margin or rectus spasm and thick fat. Rectal examination showed the perineum bathed in slimy discharge. There

were three old fistula scars. The one nearest the anus seemed to be still draining.

Before operation the temperature was 101.2° to 101.8°, the pulse 80 to 93, the respiration 18 to 23. The urine is not recorded. The leucocytes were 17,800. A Wassermann was negative.

January 9 operation was done. Next day the patient's only complaint was lame back. The temperature fell to 99.1°-100.5°. The pulse rose to 90-100. There was moderate drainage and occasional cough. On the 11th the temperature was normal. The pulse was still 80 to 100. On the evening of the 12th the temperature rose to 101.2°. The dry but severe cough continued. Nothing was heard in the chest except crepitant râles in the left base. There was a little blood staining on the dressing. The wound was in good condition. In twenty-four hours there had been fourteen ounces of drainage. The urinary output was low, 28 to 13 ounces, though the fluid intake was creditable. January 13 the condition was much worse. A medical consultant reported that "the diffuse bronchitis was probably now bronchopneumonia." The patient was scarcely rational. That day she died.

Discussion

by dr. edward l. young, jr.

Of course today the fistula should be entirely relieved by operation properly done.

There are two or three things here that we think of together. Pain in the right upper quadrant and indigestion may go together. Persistence of a discharge from a continued fistula in ano, tuberculosis, with which she had been intimately associated in her family, pruritus ani and incontinence of feces—those four things we think of as possibly or even probably being related.

She had been said to have heart trouble. Perhaps the doctor thought she was having an attack of angina pectoris. He had presumably been treating her for "grippe." Did he now say she had "intestinal grippe"? Yesterday I operated on my fourth case during this epidemic of "intestinal grippe," and drained the appendix abscess which was the "intestinal grippe."

In other words she had a pretty severe pain.

With the onset of jaundice added to the pain, with the story of indigestion, it seems as though the diagnosis of trouble in the biliary tract was made fairly certain.

The blood pressure for her is not too high.

The fistula is a side-show at the minute.

They waited for twenty-four hours, presumably to see if it would quiet down. In any person with an acute gall-bladder, if that gall-bladder will quiet down the risk to the patient of an interval operation is very much less. Moreover it is possible to do safely a more complete operation during the interval than during an acute attack. In a woman as sick as this presumably the only thing that can be done is to take out the stones if stones are the cause, or if it is an acute cholecystitis simply to drain. But apparently she did not quiet down, so they went ahead and operated.

Her age is a little against her. She has been sick for some time. There is evidence that there is infection spread somewhat through the upper right abdomen. If this pain was due to stone and there was a mild infection back of it the gall-bladder has not ruptured. The gall-bladder does not rupture with blocking of the cystic duct. But acute infection of the gall-bladder with gangrene may result in perforation with localized abscesses, or it may rupture into the liver with abscess in the liver. The fact that she has jaundice of course means obstruction to the flow of bile into the duodenum, but that does not necessarily mean a stone, because infection and adhesions can do the same thing. It is suggested that here is more jaundice than we get with cirrhosis or hepatitis.

So I should say the only thing to do for her is, as I see it now, under local anesthesia (the anesthetic is hard to choose unless we see the patient) to make an incision and drain the gall-bladder, getting out stones if stones are the cause of the trouble.

I would like to ask a question. How long does abdominal angina, so-called, last during attacks? This has gone on for several days.

Dr. Cabot: For hours, and then relief of pain or death.

dr. young's pre-operative diagnosis

Acute cholecystitis.
Cholelithiasis (?).

pre-operative diagnosis

Acute cholecystitis.

operation

Under local novocain an ordinary gall-bladder incision was made. A large inflammatory mass in the gall-bladder region made up the gall-bladder. The transverse colon was firmly adherent over the fundus of the bladder. It was thought inadvisable to separate the adhesions. The operative field was carefully walled off. The gall-bladder was drained through a trocar of many ounces of thick, viscid, almost black bile. The gall-bladder was then opened. It was impossible to reach the base of the gall-bladder with the finger. An attempt was made to find stones with a gall-bladder scoop and with large forceps. No stones were felt. This however was not positive because of the extreme size of the gall-bladder. A rubber tube was sutured into the opening with some difficulty because of the friability of the tissue and because of inability

to deliver the fundus of the gall-bladder. Dry gauze was placed around the tube and a piece of rubber dam through the incision. The wound was closed with extreme difficulty because of the thin peritoneum and the frequent coughing attacks of the patient.

Further Discussion

They showed good judgment, it seems to me, because the less done to this woman the better she will be provided we accomplish the drainage that is necessary to relieve the immediate trouble. In other words it seems to me that they did the best possible thing for her to give her a chance to come back.

The drainage is pretty good evidence that they did not leave gall-stones behind in the cystic duct. It does not prove that there were not stones in the common duct. But it is better to have a live patient to do a second operation on than a dead one for Dr. Richardson to take the stones out of.

She had had more sepsis than she with her general condition was able to look out for, and the local condition was not treated soon enough to relieve her as far as resistance went. So I should assume that she died of post-operative pneumonia which was part of the general infection from which she suffered, not a direct result of the operation itself.

Of course to do cholecystectomy is the operation of choice, but we do have to drain gall-bladders very frequently, and it is astonishing, in the light of the tendency to take them out today, (but not when we stop to think that that was the ordinary operation a few years ago)—that most of these cases do not have to have a secondary operation, that drainage will result in the cure of the patient. Of course occasionally a secondary operation has to be done, but not often.

I think Dr. Richardson will say death due to sepsis in the form of pneumonia and the suggestion is that in the wound and below the diaphragm the amount of the sepsis will be found to be very slight.

Clinical Diagnosis (from hospital record)

Acute cholecystitis and cholelithiasis.

Dr. Edward L. Young's Diagnosis

Cholecystitis.
Cholelithiasis.
Pneumonia.

Anatomical Diagnosis

1. *Primary fatal lesions*

Cholelithiasis.
Cholecystitis with small area of necrosis and purulent infiltration of the bladder wall.
Slight dilatation of the bile ducts.
Localized peritonitis.

2. *Secondary or terminal lesions*

Edema of the lungs.
Soft spleen.
Small areas of injection and erosion of pericardial vessels and the aortic vasa vasorum.
Slight hemopericardium.

3. *Historical landmarks*

Operation wound.
Fatty infiltration of the pancreas.
Moderate arteriosclerosis.
Slight hypertrophy and dilatation of the heart.
Small dissecting aneurism of the liver end of the aortic arch.
Chronic pleuritis.
Obsolete tuberculosis of the bronchial glands.

Dr. Richardson: There was the operation wound mentioned, twenty-six centimeters long, closed with sutures except in the region of the middle portion, where a sinus led down to the gall-bladder.

The skin was faintly yellowish, slight icterus. The muscles were pale.

The peritoneal cavity contained considerable brownish opaque thin purulent fluid, and in the region of the gall-bladder there was considerable localized peritonitis. The gastro-intestinal tract on section was frankly negative. The intestines were moderately distended. The liver was about at the costal border. The diaphragm on the right was at the fifth rib, on the left at the fifth interspace.

There were a few pleural adhesions on the right. The left lung was bound down by old adhesions. The lungs showed much edema.

The pericardium was negative except that it contained a small amount of fluid blood. The vasa vasorum along the ascending thoracic aorta within the pericardium were markedly injected and slightly eroded over a small area and were the source for this small amount of blood in the pericardial cavity.

The heart weighed 370 grams,—slightly enlarged for her. The myocardium was negative macroscopically and microscopically. The valves and cavities were negative. There was a little dilatation on the right. The coronaries were capacious and free, with a slight amount of fibrous sclerosis. The aorta and great branches showed a moderate amount of arteriosclerosis. The vascular apparatus elsewhere was negative except as will be mentioned further on.

The liver tissue was a little punky but showed no definite lesions.

The gall-bladder was considerably enlarged, fifteen centimeters long, nine in circumference, the wall slightly thickened. The peritoneal surface was smooth except in the region of the surgical opening, where the margins of the

wound were necrotic, and in association with the area of peritonitis mentioned as present in this region. The bladder contained three stones, one two and a half centimeters by two centimeters, the others two centimeters and one and one half centimeters in greatest dimension. They were facetted at each end. The mucosa of the bladder was generally reddened and granular, with minute shallow ulcerations in places. The cystic duct was rather small at its upper end, of good size below, and free. The hepatic and common ducts were slightly dilated, the mucosa negative.

The spleen was soft. The kidneys showed a slight amount of arteriosclerotic degeneration. The pancreas showed considerable fatty infiltration, a not uncommon condition.

In regard to the vascular apparatus, an incidental thing which might have been serious if it had progressed further was a small dissecting aneurism at the lower end of the aortic arch. This is a favorite place for them. Once in a while the dissection of the wall is sufficient to rupture it and there is great hemorrhage into the pleural tissues and pleural cavity, with death.

DR. CABOT: Do you think that place on the aorta from which the blood got into the pericardium was the same sort of process which produced that dissecting aneurism?

DR. RICHARDSON: There was injection of the vasa vasorum and erosion of their walls over a small area.

DR. CABOT: Why did they need a twenty-six centimeter incision?

DR. YOUNG: She was a very fat woman, and in an operation under local there can be no tension on the abdominal wall. It is much easier on the patient than it is to do it through a smaller hole with tension. I think that adequately explains the incision.

I should like to emphasize again the fact that I think intestinal grippe is the most dangerous diagnosis today. I have seen seven cases and operated on four with two deaths. There is no question but there is abdominal pathology occasionally following or accompanying these "grippe" infections, but the classification of all intra-abdominal symptoms as due to that I think is pretty dangerous.

THE following thirty states have enacted laws providing for voluntary admission of patients to hospitals for mental disease: California, Colorado, Connecticut, Georgia, Illinois, Indiana, Kansas, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Utah, Vermont, Virginia, West Virginia, and Wisconsin.—*Mental Hygiene Bulletin.*

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THE PSYCHONEUROSES

AUSTEN FOX RIGGS and WILLIAM B. TERHUNE (*Amer. Jour. Psychiat.*, January, 1925) review their experiences with over 2000 cases treated in private practice. Many current theories they believe to be untrue. They found no evidence to support the theory of "nervous exhaustion," Babinski's conception of pithiatism or the Freudian explanation. Infections are not a direct cause, nor are the endocrine glands. Their belief is "that nervousness is the result of an inefficient use of a structurally good body-mind machine, such inefficiency giving rise to maladaptations, which are in turn manifested by any number of symptoms. We believe that nervousness is purely a functional disorder, that it occurs in extremely sensitive individuals and that it is usually marked by a temporary impairment of judgment which is in no way permanent, but is rather the result of emotional strain." Their treatment consists of temporary environmental change, medical treatment for physical difficulties which may exist, and reëducation regarding emotional difficulties, the last being the most important. About 85 per cent. of the cases are "restored to full usefulness."

[H. R. V.]

UTILIZATION OF FAT

BLOOR'S Harvey Lecture (*Jour. Metab. Res.*, November-December, 1923) treats too many topics to cover here. Fat is the most concentrated foodstuff and the only one stored in large amounts. Separate classification into fats and lipoids is indefensible. There appears to be a parallelism between the blood fat content chemically and microscopically. Cholesterol and lecithin are opposite in their effects on hemolysis. Cholesterol, being practically insoluble in water, might, in its usual concentration in blood of 0.2 of 1 per cent., be expected to be deposited; in fact, deposition does not happen at normal and rarely at higher concentrations. [H. G.]

THE PERSONALITY OF SCHOOL CHILDREN

C. MACFIE CAMPBELL (*Amer. Jour. Psychiat.*, January, 1925) briefly outlines his experiences in the examination of certain Brookline school children. The survey was made by a small group including a psychiatrist, a psychologist, and psychiatric social worker, the school physician, a school nurse, and a teacher. They saw all retarded children. In this paper attention is simply called to the organization of the group and a few case histories are given. The author thinks the same group might examine, in addition to the retarded children, those who are nervous, or unstable, or have personal difficulties. This latter type form an important group as possible candidates for later nervous troubles. The author thinks that at this period mental prophylaxis should be instituted. [H. R. V.]

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GAS IN WARFARE

Recently Mr. J. B. S. Haldane, a distinguished English physicist, uttered an eloquent plea for the use of gas or other chemical agents in warfare, arguing that they were both more humane and more efficient than the older weapons. Col. Vedder, of the U. S. Army Medical Service, has just written a book in which he states almost exactly the same views as Mr. Haldane.

Both had actual experience of gas in war, Mr. Haldane as a combatant, and Col. Vedder as a medical officer. Col. Vedder gives reasoned arguments why chemical weapons are likely to be employed in future warfare. His first argument is based on the stern logic of war. When nations are locked in a death struggle they will assuredly make use of those arms which are most adapted to lead to victory, and they will do this in the teeth of convention or prejudice. The second argument, too, satisfies the sentiment of humanity, so that together the two, if sustained by practical experience, override all objections.

In analyzing the question of humanity various points must be taken into consideration. In the first instance, the using of gas in war was against custom. Further, a strong prejudice was created against gas, and the popular feeling aroused that gas was a barbarous weapon appears to have been due to the effects of chlorine which were severe, partly because its use was unexpected and a shock, but mainly because its victims were unprotected. As a matter of fact when adequate protection had been evolved, it was efficient no longer and its employment was abandoned. The substances which took its place as a rule caused little pain, although some of them killed when in high concentration. Mustard gas caused the most casualties, which was due largely to the fact that men did not know they were being gassed, because little or nothing was felt at the time. Moreover, they did not suffer afterwards so severely as the wounded from other causes, and there was not the mutilation so often left by gunshot wounds.

This absence of mutilation is a strong point in favor of chemical weapons as being more humane than the wounds made by artillery, shrapnel, bullets or bayonets. Thus Col. Vedder's argument is strong that "from a military standpoint, a gas that poisons without pain is far more effective than a painful gas, for the pain warns of the danger and the man puts on a mask. We may safely say, therefore, that if a man is killed outright by any gas, it causes less pain and suffering than bullet wounds, while if he becomes a casualty, his sufferings are still less than those of the wounded and are of shorter duration."

Another point made by Col. Vedder is that chemical warfare may be adapted to circumstances and need not necessarily be highly dangerous or cause serious suffering to bring about results. On the other hand there is no control over a shell when once it has left a gun or mortar, or a bullet when it has once been fired, the injury it inflicts is a matter of chance. The author suggests, indeed, that the time may come when rifles, machine guns and explosives will be considered barbarous and inhumane as compared with gas.

Yet another thing to be considered is that a gas attack can be made by a relatively small number of men. As for statistics with regard to the fatality of the American Army, the experience was that of the total admissions to hospital 65.9 per cent. were due to gunshot and 31.49 per cent. to gas, but 89.05 per cent. of the deaths were due to the former and only 8.92 per cent. to the latter. The book is written from the point of view that in future wars gas will be an agent, perhaps the chief agent of offence, and that the medical department of the Services must be prepared to treat gassed cases; and it is intended in the book to give medical officers an outline of chemical warfare and treatment. His conclusions, which are drawn from the British Army as well as the American Army, are: (1) Only a very minute percentage have suffered from any permanent disability caused

by gas; (2) There is not the slightest evidence that gassing has increased the liability to tuberculosis. So far as the evidence goes, men who have been gassed suffer less from tuberculosis than normal individuals under the same circumstances; (3) Neurasthenic conditions are responsible for a considerable part of the disability alleged to result from gassing; (4) Few of the cases that receive a pension will ever admit a subsequent improvement or cure.

THE ANNUAL MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY

THE program of the exercises of the One Hundred and Forty-fourth Anniversary, as it appears in the pamphlet issued by the Secretary, may be found on pages 987 and 988 of this issue.

The Secretary's publication includes lists of officers of the Society, standing committees, dates of council and censors' meetings and announcements of the Secretary and Treasurer. This pamphlet has been sent to all members of the Society.

A study of this program will reveal an arrangement of the literary exercises designed to prevent overlapping and conflict of the sections. Heretofore, for many years, two or more sections have sometimes been in session at the same time. The present program is designed to obviate the difficulty experienced when fellows have wanted to listen to discussions taking place simultaneously in different halls. It has happened that the attractions of two speakers has caused some annoyance and confusion by reason of the desire of some fellows to get the essential facts set forth by both. The only conflicts exist in the plans for the forenoon exercises, when the hospitals will compete with the sections assigned for those periods.

The sections have apparently selected subjects for discussion which will interest the majority of our members.

The Annual Discourse by Dr. David Cheever will deal with great problems relating to the Health of the People and the Physician as custodian thereof.

Professor Zinsser in dealing with immunity in the Shattuck Lecture should be heard by every doctor who can spare time to attend.

The Committee of Arrangements and the officers of sections have worked hard to make this annual meeting especially interesting.

The President has secured entertaining speakers for the after dinner exercises Wednesday evening.

Cordial invitations to physicians not at present members of the Society might induce some worthy persons to join with us and participate in the benefits to be derived from associations to be found in this organization.

A copy of the History of the Society lent to a non-member and read by him would convey valuable information relating to the oldest State Medical Society in the United States with a continuous existence. Seventy per cent. of the physicians of Massachusetts are members of the Society. This number could properly be increased to eighty per cent.

Attendance and coöperation will make this a notable meeting of the Society.

MISCELLANY

PARASMALLPOX

UNDER the above title, Dr. Garrow, Medical Officer of Health, Chesterfield, England, gives a very interesting discussion of the disease generally known as "alastrim" or "amaas." During the past two years it has been quite common in parts of England, so that the author has had an excellent opportunity to observe it. His paper is based on 500 cases seen in Chesterfield, for the study of which he was prepared by seeing cases in a number of other towns before the disease reached Chesterfield.

A brief and accurate description of the attack he gives in three words used by a patient: "pimples following influenza." Both patients and physicians are apt to mistake the attack for influenza. The onset is marked by headache, dizziness, pains in body and limbs and sometimes by more severe disturbances, though nothing like the classical onset of smallpox is ever seen. The temperature runs from 100° to 103°, and subsides by lysis. The patient recovers rapidly and feels well for the remainder of the attack, including the eruptive stage. The final stage of eruption is not the crusts or scabs of smallpox, but consists of rounded, translucent bodies, in size from a pin head to a split pea, resembling amber beads At times only few amber beads are found, but if their appearance has been preceded by "influenza," the diagnosis is certain.

Of the cases none occurred in persons vaccinated in infancy or under the age of seventeen; no recently vaccinated person was attacked, and no person vaccinated in infancy and re-vaccinated at any age was attacked. Vaccination against smallpox protected absolutely against the disease.

In spite of this, Dr. Garrow holds that parasmallpox is a distinct disease, distinguishable from smallpox on the one hand and chickenpox on the other; that it breeds true, and rigidly maintains its mild type, there being no evidence that it ever assumes a virulent form. In view of these facts, he believes administrative measures might be modified with advantage.

The importance of the question lies in the relation or non-relation of the disease to smallpox. In Trinidad the conclusion was reached after careful study that alastrim was a mild form of smallpox, and investigations by the

United States Public Health Service led to the same conclusion.

The trend of the discussion of Dr. Garrow's paper was against his conclusions. It was shown that the malady was not known in well vaccinated communities, and no case had been observed in Scotland, where vaccination has been well carried out in the past.

Until further proof of the non-identity of alastrim and smallpox is given, health officers should be on their guard, and treat alastrim as mild smallpox.—*American Journal of Public Health*, Apr., 1925.

CORRECTION

In the article "Convalescence, VIII: Notes on Convalescent Work in the U. S. Army," by Dr. John Bryant which appeared in the Journal of May 14, on Page 944, right-hand column, second paragraph, the clause reading "Under date of May 10, 1918" should read "Under date of May 10, 1919."

LURING THE TSETSE FLY

Scented decoys for the deadly tsetse fly are now employed in up-country districts by government entomologists. In order to trap and destroy the insects which cause sleeping sickness, dummy animals are being erected upon which the flies light with the intention of biting the animals. If animal odors cling around the dummies the flies will linger about until killed. Images of donkeys with brown paper legs are commonly employed.—*Science.*

INDUSTRIAL HYGIENE CLINIC

The Industrial Hygiene Division maintains jointly with the Reconstruction Hospital and the College of Physicians and Surgeons a clinic for the study, diagnosis and treatment of the industrial diseases. This clinic is located at the Reconstruction Hospital, corner of 100th Street and Central Park West. Not only will occupational diseases be studied, but later when the clinic grows, doctors and nurses will be given special training in the methods of industrial medicine and surgery.

Physicians desiring to refer cases of suspected or actual disease caused by industry are requested to write to The Director, Industrial Hygiene Clinic, 100th Street and Central Park West, New York City.

BULLETINS ISSUED AND READY FOR DISTRIBUTION BY THE BUREAU OF WORKMEN'S COMPENSATION OF THE NEW YORK STATE DEPARTMENT OF LABOR

These bulletins should be of interest to any practitioner of medicine in the State of New York for they are based upon actual experience with cases which have come before the Bureau of Workmen's Compensation with which general type of cases any physician may find himself occupied at any time.

Requests for these bulletins should be made to Secretary, Department of Labor, 124 East 28th Street, New York City.

No. 1. Cancer in its Relation to Trauma—R. Lewy, M. D. This bulletin contains material likely to be of interest to those members of the medical profession who are especially interested in the general subject of cancer.

No. 2. Influences of Inquiry on Bone and Joint Diseases—Royal Whitman, M. D.

No. 3. Injuries to the Head and their Sequelae—R. Lewy, M. D. This bulletin contains a description of a number of cases which have come before the Workmen's Compensation Bureau, which together with the discussion and summary should be of interest to the general practitioner of medicine.

No. 4. Disease in its Dormant State Activated by Trauma or Occupational Conditions—R. Lewy, M. D.

No. 5. Accidents in Connection with Gynecologic Disorders with Reference to the Compensation Act—H. J. Boldt, M. D.

No. 6. The Interpretation of Otological Findings in Cases of Industrial Trauma—Ralph Almour, M. D.

TOILET PREPARATIONS

The public has continued to manifest considerable interest in the composition of the various toilet and cosmetic preparations. Inquiries concerning the character, probable value and possible harmfulness of this or that preparation are of frequent receipt. Particularly has this interest concerned hair colorings and alleged flesh-reducing compounds, the numbers of both of which appear to be legion and, with the development of the "beauty parlor" idea, are on the increase.

While some of these preparations are innocent enough, others are distinctly questionable as to safety, as well as of more than questionable value. Too many of these who are hit by the flesh-reducing fad seem to be gullible enough not only to believe the unreasonable claims regarding flesh removal by mere application, unaccompanied by exercise or change in eating habits, but also to pay ridiculously high prices which some of these promotors seem to be able to extort from their victims in return for a promise of regaining the willowy form of youth. Such women should understand that no such road is open, and that most of the popular roads in that direction are unsafe.

Notwithstanding the frequent warnings issued by this and other state health departments, the old-fashioned and highly dangerous lead and sulphur hair dyes still seem to be with us. Two such products are, or have been until recently, manufactured in Manchester, one by Sam. B.

Tarrante, 23 Hanover St., the other by Tebbetts Bros. In the same objectionable class are those hair dyes which contain silver or copper. Formerly the so-called "henna" shampoo preparations have generally contained copper but a brand as recently examined showed no metallic additions.

Just now there is a vogue for two-solution "hair colorings" based upon the use of an apparently efficient yet poisonous aniline derivative called paraphenylene diamine, the tendency of which is to occasion severe eczemas. At first these were unqualifiedly sold with the usual claim of being perfectly harmless, but because of litigation, either actual or threatened, directed against the makers or the local beauty parlor operators in consequence of occasional dire results from the use of this compound, the promotors have become more cautious. Thus, one of these is frank enough to declare upon his label that he "assumed no responsibility whatever for results," while another, for a slightly different kind of preparation, claims that the latter is "free from all substances which might have an injurious effect, provided directions are adhered to."

The present principal promotor of this hair coloring, Inecto Inc., recognizing that skins differ as to susceptibility, instructs the operators to apply a preliminary, or trial, skin test, and to avoid application to the scalp where any redness or inflammation thus develops; yet this company goes too far in guaranteeing that "Inecto Rapid is positively safe for use on all healthy skins," because an unfavorable result is by no means evidence of an unhealthy skin.

The situation with regard to Inecto, Inc., appears to be somewhat mixed because it is claimed by one of these concerns that there are two such companies in the field, one a Delaware Corporation, but both located in New York City, and both going under the name of "Inecto, Inc.," although having no mutual connection. During 1924 one of these concerns was proceeded against by the New York City Health Department for a violation of the sanitary code in connection with the sale of its preparation, and the Court found for the respondent. (We are informed that this was due in part to inadequacy of the language of the regulation and in part to the fact that victims of the use of this compound were reluctant to appear and testify.) Recently a movement was inaugurated by the American Medical Association looking to regulation of the manufacture and sale of cosmetics and particularly the elimination of hair dyes of the paraphenylene type, and it is significant that at somewhere about this time the Inecto company, or one of them, commenced extensive advertising of a new coloring under the name of "Inecto Rapid Notox." The latter is represented as being a "detoxified" modification of the original formula; in just what respects it may differ therefrom, we have no information. The public will however do well in being cautious concerning the use of all preparations involving derivatives of this general nature.

Unless some claim of a remedial nature is made, these toilet preparations do not come within the scope of the Food and Drugs Act, so that in the absence of any special legislation, abuses are very difficult to handle. About the only course open is publicity and the always slow remedy of education of the user.—*Report of New Hampshire State Board of Health.*

LONGEVITY IN RELATION TO MARRIAGE

THE Scottish life tables for 1921, compiled by Dr. J. C. Dunlop and summarized in a recent issue of the Transactions of the Faculty of Actuaries, show, as one might expect, a general increase in the mean length of life of both males and females as compared with the tables of ten years ago. The gain in Scotland between 1911 and 1921 was about three years for males and something over three years for females. These compare with gains of four years and three years respectively in the white population of the ten original Registration States of the United States. These facts are of interest because of the very similar conditions of longevity in the two countries.

Of particular interest are the data which Dr. Dunlop's report brings regarding the differential longevity of married and single persons in Scotland. The bachelor of 25, if he remains single, is nearly five years poorer in his expectation of life than the married man. The spinster, on the contrary, seems to have a slight advantage of three months of additional life, as compared with her married sister. This difference is so small that we might perhaps feel somewhat doubtful regarding its significance. Dunlop, however, has carried the inquiry a little further, to examine how far the observed advantage of the spinster may be attributed to her escape from the risks incidental to pregnancy and childbirth. When allowance is made for deaths referable to these, it is found that, in Scotland, in the period under discussion, the married woman had an expectation of life of 43.4 years as compared with 42.8 years for the spinster, an advantage of something over half a year. There is a certain plausibility about these figures, which inclines one to regard the difference as probably significant, although it is rather small.

Comparison is made, also, of the expectation of life of spinsters, wives and widows. Widows are at a distinct disadvantage as regards mean length of life. The statistics here bear out what one would naturally expect in view of the economic and other stresses of widowhood.

Dr. Dunlop cautiously abstains from speculating as to the reasons for the figures observed and the seeming advantage of the married, especially

among males, over the unmarried. He rests his case with the remark that the shorter life of the bachelor, as compared with his married brother, may be due at least in part to a species of natural selection, since the class of "unmarried persons" will naturally include some whose single estate is directly or indirectly referable to indifferent health or actual disease.—*Statistical Bulletin Metropolitan Life Ins. Co.*

U. S. VETERANS' BUREAU

Four Medical Supervisors for Field Duty

In order to carry out the work of Regional and Hospital standardization of clinical and administrative service in the field, General Hines, Director of the Veterans' Bureau, has just assigned four medical supervisors to a tour of field duty with stations at New York, New Orleans, Chicago and San Francisco.

To facilitate the handling of medical problems, it is the plan of the Director to alternate field and Central Office service for staff physicians so that they may become thoroughly familiar with all phases of medical administration both in the field and in Central Office and also in order that the Medical Service may be completely standardized and uniform throughout. This plan was strongly endorsed at the last meeting of the Medical Council of the Bureau in February.

Dr. Winthrop Adams will take station in New York and his territory will cover the states of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, West Virginia and District of Columbia.

Dr. E. P. Odend'hall goes to New Orleans and his territory will cover the states of North and South Carolina, Tennessee, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, Oklahoma, and Texas.

Dr. Ord Everman is assigned to Chicago to serve the states of Ohio, Indiana, Kentucky, Illinois, Michigan, Wisconsin, Iowa, Missouri, Kansas, Nebraska, Minnesota, and North and South Dakota.

Dr. George C. Skinner, until recently Acting Manager of the Dist. of Columbia Regional Office of the Bureau, will be stationed in San Francisco, his territory comprising the states of Montana, Wyoming, Colorado, New Mexico, Utah, Arizona, Nevada, California, Oregon, Idaho and Washington.

HOSPITALIZATION OF WAR VETERANS

A circular sent out by Inez M. Pugh sets forth many facts relating to the hospital care of Veterans. A few extracts are appended:

The U. S. Veterans' Bureau is already operating 49 hospitals, 74 dispensaries, 94 clinical laboratories, about 100 X-ray laboratories and housing over 29,000 patients, the Bureau is constantly constructing and opening new hospitals and incorporating additional facilities in those already open. These hospitals are as modern and complete as science and careful planning can make them and no detail of utility or convenience is sacrificed to a false prompting toward economy.

In order that the medical authorities of the hospitals may be enabled to give their undivided attention to the care and treatment of patients the Director has established a business manager in each hospital to look after the financial and economic affairs of the institution.

In the matter of hospitalization of disabled veterans the President, the Director of the Bureau and the Congress are thoroughly in accord and whatever may be necessary in material and personnel to furnish adequate hospitalization and medical service of the highest order is being and will be provided for. The generous provisions of the Reed-Johnson Bill have permitted the Bureau to open its hospitals to veterans of any war in which the United States has participated since 1897 and already over 2,004 have availed themselves of this benefit, showing plainly the acute need for such assistance.

In planning the hospitals, not alone is the medical care of the men considered, but recreational and entertainment features are also provided, chief among which latter are the radios which are being installed in all Veterans' Hospitals as rapidly as suitable equipment can be obtained.

In the appropriations recently made available by Congress complementing the Third Langley Bill, six new hospitals and a National Training School for the Blind are provided for and funds are made available for the completion of another hospital now partially constructed.

In order to secure for the Bureau the greatest possible efficiency in medical service the Director has assembled a body known as the Medical Council which is composed of thirty of the leading specialists of the United States and which meets at his call to counsel and advise with him and the Medical Director in all matters pertaining to the medical care and treatment of the disabled.

The Director feels that it is much more a service to give a man back his health and with it his economic independence than it is merely to maintain him in a hospital and pay him compensation. Therefore, this feature is a significant step in demonstrating his theory that cure rather than money compensation should be the chief endeavor of the Bureau.

There was an old fashioned idea that a hospital was a gloomy, disinfected place, redolent

of iodoform and hung with fever charts, in which to be sick and do something about it, but this notion has given place to a gratifying knowledge that the Veterans' Bureau Hospitals, at least, are "comfy," cheerful and pleasant, and that mental contentment for the patients is quite as important an objective as physical relief and betterment.

RECENT DEATHS

RIPLEY.—Dr. Frederick Jerome Ripley, for many years on the Brockton Board of Health, died at his home in Brockton, May 11, 1925, at the age of 66. He had been ill with heart disease for several years and his name had been placed on the retired list of the Massachusetts Medical Society in 1924, he having been a Fellow since 1883, the year he received his M.D. from Harvard Medical School. He was born in North Easton, November 10, 1858, attended Dartmouth College and was graduated with the class of 1880. After taking his degree in medicine Dr. Ripley served as house officer at the Brockton Hospital before settling in practice in that city. He was an assiduous member and chairman of the Board of Health, was a member of the Massachusetts Association of Boards of Health, also of the Massachusetts Medico-Legal Society and the Brockton Medical Society. In the Plymouth District Medical Society he was an important Fellow, serving as councilor for a long series of years and as president in the years 1908, 1909. He was an efficient supervising censor and was chairman of the committee to prepare the examination papers for the candidates for fellowship. His presence in the community will be much missed.

SMITH.—Dr. Eugene Hanes Smith, until last year dean of the Harvard Dental School, died at his home in Boston, May 9, 1925, at the age of 71. He was a native of Old Town, Me., where he was born on October 23, 1853. His father was Asa Smith and his mother, Mary Cosby Smith. He prepared for college at the Allen English and Classical School in Newton, and, entering the Harvard Dental School, he was graduated in 1874 with the degree of D.M.D. He was professor of clinical dentistry and orthodontia and became dean of the Dental School in 1895, leaving an enviable record of efficient service during the 28 years he held office.

Dr. Smith was a member of the American Academy of Dental Science and had been its president for two terms; American Dental Association, Massachusetts Dental Society, and once president; New York Institute of Stomatology, Harvard Odontological Society, and Dental Faculties Association of American Universities, of which he also had been president. He had been a frequent contributor of articles on dentistry to various publications. His sole survivor is his wife, formerly Carrie Maria Shaw of Marlboro, whom he married in 1876.

CORRESPONDENCE

CITY OF BOSTON — HEALTH DEPARTMENT
THE ABATEMENT OF NUISANCES

May 6, 1925.

Editor, Boston Medical and Surgical Journal:

In the Journal for April 30, 1925, page 872, there was an article copied from the *Connecticut State Health Bulletin*, in which it appeared that it is necessary for a board of health to show that there is a danger to health in order to be able to abate an objectionable condition as a nuisance. While this may be true in Connecticut, it is not so in Massachusetts.

In an article by Dr. Francis George Curtis of Newton, entitled "Legal Limitations and Authority of Massachusetts Local Boards of Health," which appeared in the Journal, Volume 186, No. 19, pp. 625-629, May 11, 1922, it was pointed out that in Massachusetts it is only necessary to show that a condition is offensive to the senses in order to constitute a nuisance.

This legal attitude, which is based on an old Massachusetts statute, enacted in 1797, has been repeatedly sustained by Massachusetts courts. Even the constitutionality of the act referred to has been passed upon by the courts.

Dr. Curtis refers specifically to a Massachusetts Supreme Court decision in 1846 in which it was held by the court that in the matter of a complaint regarding odors arising from flowed land from which the water was occasionally withdrawn, that the corruption of the atmosphere need not be sufficient to be dangerous to health in order to constitute a nuisance. Courts have repeatedly held that the odors from a piggery made it a nuisance. It is interesting to note, however, that in one case at least (Fay vs. Whitman, 100 Mass. 77) the court held that "the injury must not be fanciful, but must be real; affecting not persons particularly fastidious, but irritating and annoying to persons ordinarily susceptible."

The courts have sustained the contention of the Boston Health Department that a junk collection of old plumbing fixtures in a back yard, regarded as objectionable by neighbors when viewed from their dining room windows, constituted a nuisance. Evidence of the breeding of rats on premises is held by the Boston Health Department to be a nuisance.

Yours very truly,

Victor Safford.

THE LEPER COLONY AT MOLOKAI

(Dr. E. H. Bigelow has kindly allowed us to publish this interesting letter.—Ed.)

Territorial Fleet Committee
Headquarters, Chamber of Commerce, Honolulu
April 9, 1925.

Enos H. Bigelow, M.D.:

Dear Old Friend—Have just returned to Honolulu after a rather unusual medical tour with my son, J. Warren White, and I cannot resist writing you this letter, both for your interest in public health and for old friendship's sake of forty-five years ago, when we were classmates in the old Harvard Medical School. Once in two years the Legislature of Ter. Hawaii officially visits the leper settlement on the Island of Molokai, to inspect the government plant there in this most isolated spot (famous the world over), to thus exhibit their interest in the lepers' welfare, to listen to any of their complaints, and in every way to promote their comfort. We were extremely fortunate to receive an invitation to go in this official party, and so, after two days on Molokai, we return delighted at this exhibition of the paternal care given these unfortunate people. It really is *wonderful!*

With us also went a few relatives of the patients there isolated, to talk with them face to face, so much more satisfactory than letter writing to anybody. This settlement is located on the northern shore of Molokai, which is, excepting at this point, lofty, precipitous and grand as scenery. Just here is a tongue of land, reaching out into the Pacific in a big triangle, with a lighthouse on the very point. The sides of this irregular three-sided land measure about five miles from point to point all around, the lighthouse on the tip pointing almost due north. The main settlement is on the most western corner, where the triangle starts from the cliff, and is called "Kalaupapa," and the children's home at the eastern

corner, "Kalawao" (where Father Damien lies buried since 1889). Total number now 485, nearly 1000 *less* than a few years ago. Now this sounds fine as statistics, but it is not the whole story by any means. Newspaper men are very enthusiastic about the cures by chaulmoogra oil, but let me tell you, professional men are sadly disappointed! Leprosy is yet a very grim story! This treatment does check it and many cases clear up and are out on parole, but its story is essentially chronic, with *acute exacerbations*, and not much is said about the old cases who return and the yet larger number who die of T. B., the common cause of death of all cases.

Up from this wild, isolated spot a thin, zigzag trail could be seen leading up the 2000-foot face of the bold cliffs, the only way of escape out to other parts of this island, and if one might reach the top he was yet almost thirteen miles from the next settlement. At Kalawao we met a lay brother, a most interesting hermit, who, though within three or four miles of the main leper colony at Kalaupapa, carries out a self-imposed isolation, an isolation one better than required, for he refuses to disturb his simple life even enough to ride those few miles over to the Kalaupapa colony. Brother Dutton for three years worked under Father Damien, and after his death—thirty-six years ago now—collected the memorials of Damien, saw them properly fumigated and sent to Belgium, where the Damien Museum was established (since destroyed in the World War). That was the last time he took the little ride to Kalaupapa. He is 82 years old, well and strong, absolutely happy and contented, and so busy that he only pitied such restless fellows as we were who had no time to think or live properly (?). He has a horror of the distraction and confusion of modern life; he believes we are smothered with superfluous demands; that the simple needs of wholesome life are very few and very easily obtained anywhere. He serves without pay, offering every last shred of his life to his wards, satisfied in answering this holy urge from within. The joy of self-denial is not yet dead in this fine old man, and he made an impressive picture in contrast to the ordinary *vivant!*

Once in two years this official visit is made. The bedridden, the blind or paralyzed are interviewed, and all those able to walk are gathered in a large hall which they use for entertainments—and on this occasion to make any complaints or criticism or petition face to face with those who are responsible for their care. A pitiful audience it was, but met by the courageous sympathy of their legal protectors. This *conversatione* was sometimes in English, but oftener in the old staccato Hawaiian, and broken into even by laughter and *applause!!* The one lady representative of the House—affectionately introduced as "*Our Mother*"—spoke in the native tongue so musically and feelingly as moved them to tears and thunderous "Coo-ie, Coo-ies," like our amens!

It was truly affecting, and voiced the delightful fellowship and brotherhood of this meeting. To the added joy of this visit the official Territorial Band was taken along—a band that sing as well as they play, most beautifully and plaintively!

I am intentionally leaving out the clinical signs and symptoms, for that can be read in any old textbook and varies but little. I must say their features are often *grotesque*, were it not so sad! The oldest woman patient, now bedridden and over 80, had been there since she was 14 or 15 years of age! She told me she was "contented and happy." A blind old man could speak aloud only by closing with his finger the opening of the trachea tube in his throat, wearing this now over three years "very comfortably" he declared! The bacillus was demonstrated in the microscope in a little serum obtained from the rim of an enlarged ear.

It is almost foolish to try to write what we saw in 48 hours on Molokai, but it was a great and unusual opportunity, and my curiosity and professional interest were insatiable, even as yours would be, and as far as I could in these lines I wanted to share it with you—at least the setting of the stage where experiment and hope strive for yet greater victory! The truth, however, is, though a promising step has been taken and leprosy is on the wane, chaulmoogra *is not a sure weapon*—not yet! My impressions have been corrected by this visit, but when I think of the success of hydrargyrum and quinine, faith in the power of mind to wrestle yet greater secrets fully possesses me!

Forgive such a lengthy epistle, but if you think it would interest anyone else of our brethren use it as you may see fit.

Sincerely yours, Aloha!

H. Warren White.

P. O. Box 2366, Honolulu, T. H.

EXTRACT FROM A LETTER FROM CHINA

Abounding Grace Hospital,
Anshun, Kweichow,
West China.

February 26, 1925.

Editor, Boston Medical and Surgical Journal:

As you may observe, we are on the outskirts of the medical world here. The distance is great, but the means of transportation are so primitive that it takes us days to do what at home is done in that many hours. Indeed, we do not speak of distance in terms of miles but in terms of days.

Political conditions in this part of the world are about as bad as can well be imagined. The country is overrun by soldiers and robbers—and, in fact, the terms are almost synonymous. The common folk are reduced to a pitiable state of poverty as a result of the constant demands made upon them by the militarists.

Yours sincerely,

E. S. Fish.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

Diseases Reported for the Week Ending May 9, 1925

Anterior poliomyelitis	1	Ophthalmia neonatorum	16
Chickenpox	133	Pneumonia, lobar	119
Diphtheria	76	Scarlet fever	249
Dog-bite requiring anti-rabic treatment	7	Septic sore throat	5
		Smallpox	1
		Syphilis	48
Encephalitis lethargica	5	Suppurative conjunctivitis	12
Epidemic cerebrospinal meningitis	5	Trachoma	2
		Tuberculosis, pulmonary	117
German measles	247		
Gonorrhea	75	Tuberculosis, other forms	20
Hookworm	1		
Influenza	66	Tuberculosis, hilum	13
Measles	1,101	Typhoid fever	3
Mumps	106	Whooping cough	176

Resume of Communicable Diseases April, 1925

GENERAL PREVALENCE

Measles was the only common communicable disease which showed an increase during April, with 3,846 cases reported as compared with 2,747 for March and 4,197 for April, 1924.

RARE DISEASES

Anterior poliomyelitis was reported from Arlington, 1; Boston, 1; total, 2.

Dog-bite requiring anti-rabic treatment was report-

ed from Boston, 1; Everett, 1; Lowell, 9; Medford, 1; Northampton, 3; Peabody, 6; Revere, 2; total, 23.

Encephalitis lethargica was reported from Boston, 1; Brockton, 1; Fall River, 1; Springfield, 2; total, 5.

Epidemic cerebrospinal meningitis was reported from Adams, 1; Boston, 8; Cambridge, 1; Everett, 1; Milton, 1; Pittsfield, 1; Salem, 1; Swampscott, 1; Webster, 1; total, 16.

Hookworm was reported from Boston, 2; Winthrop, 1; total, 3.

Malaria was reported from Boston, 1; Lowell, 1; total, 2.

Pellagra was reported from Pittsfield, 1.

Rabies was reported from Chicopee, 1.

Septic sore throat was reported from Boston, 6; Peabody, 1; Taunton, 1; Worcester, 1; total, 9.

Smallpox was reported from Tisbury, 1.

Tetanus was reported from Boston, 3.

Trachoma was reported from Boston, 6; Cambridge, 1; Fall River, 1; Lawrence, 1; Plymouth, 1; total, 10.

Trichinosis was reported from Boston, 1.

DISTRIBUTION

All Communicable Diseases

	April, 1925	April, 1924
Total cases (all causes)	10,370	11,925
Case rate per 100,000 population	256.9	297.9

Certain Prevalent Diseases

Diphtheria	April, 1925	April, 1924
Total cases	394	672
Case rate per 100,000 population	9.8	16.8

Cities and towns noticeably exceeding their median endemic indexes*:

Quincy	(8)	18

Measles	April, 1925	April, 1924
Total cases	3,846	4,197
Case rate per 100,000 population	95.3	104.8

Cities and towns noticeably exceeding their median endemic indexes*:

New Bedford	(4)	129	Melrose	(4)	62
Boston	(869)	1,383	Revere	(0)	25
Brookline	(72)	201	Stoneham	(13)	69
Cambridge	(200)	280	Andover	(1)	11
Dedham	(0)	23	Belmont	(4)	18
Framingham	(5)	133	Lawrence	(51)	139
Holliston	(0)	13	Lowell	(26)	45
Quincy	(95)	194	Medford	(51)	87
Amesbury	(1)	49	Methuen	(15)	42
Chelsea	(19)	40	Somerville	(125)	179
Haverhill	(4)	95	Winchester	(1)	130

Scarlet Fever	April, 1925	April, 1924
Total cases	1,148	1,719
Case rate per 100,000 population	28.4	42.9

Cities and towns noticeably exceeding their median endemic indexes*:

Norwood	(2)	17	Palmer	(0)	21
Beverly	(6)	13	Springfield	(29)	101
Salem	(13)	21	Pittsfield	(8)	19
Lawrence	(4)	19			

Tuberculosis, Pulmonary	April, 1925	April, 1924
Total cases	591	481
Case rate per 100,000 population	14.6	12.0

Tuberculosis, Other Forms	April, 1925	April, 1924
Total cases	109	122
Case rate per 100,000 population	2.7	3.04

Typhoid Fever	April, 1925	April, 1924
Total cases	42	30
Case rate per 100,000 population	1.0	.74

Whooping Cough	April, 1925	April, 1924
Total cases	622	394
Case rate per 100,000 population	15.5	9.8

Cities and towns noticeably exceeding their median endemic indexes*:

Boston	(94)	146	Weymouth	(0)	12
Brockton	(5)	25	Arlington	(3)	13
Quincy	(8)	25	Greenfield	(4)	17

*The Median Endemic Index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the name of each city and town indicate the Median Endemic Index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

NEWS ITEMS

HONORS CONFERRED

By vote of the Senate of Queen's University of Belfast the honorary degree of Doctor of Laws is to be conferred upon Dr. Hugh Cabot of Ann Arbor, Michigan, (formerly of Boston,) Dr. Charles Mayo of Rochester, Minnesota, and Dr. Franklin H. Martin of Chicago, Illinois.

The ceremony will take place on June 13, in connection with the visit to Ireland of American doctors associated with the Interstate Post-Graduate Assembly.

INSTRUMENTS AND EQUIPMENT AVAILABLE

We have been informed that the administrator of the estate of the late Dr. Paul A. Hudnut of Northampton, Massachusetts, will dispose of the doctor's instruments and equipment. The list of items is varied. Anyone interested in considering the purchase of any of them should communicate with Walter L. Stevens, 39 Main Street, Northampton, Mass.

PHYSICIANS REGISTERED IN MASSACHUSETTS THROUGH CERTIFICATION OF THE NATIONAL EXAMINING BOARD

Walter B. Whiting, Harvard Club, Boston, Mass.; Philip Batchelder, Mass. General Hospital, Boston, Mass.; Wyman Richardson, 382 Hammond St., Chestnut Hill, Mass.; James G. Simmons, City Hospital, Worcester, Mass.

NEW OFFICERS OF THE NEW ENGLAND HOSPITAL ASSOCIATION

The following officers were elected at the closing session of the New England Hospital

Association Conference held in Worcester, May 14:

President—Dr. George A. MacIver, Assistant Superintendent of the Massachusetts General Hospital.

Vice-President—Charles Lee of Waterbury, Connecticut.

Treasurer—Dr. Leslie H. Wright, Peter Bent Brigham Hospital, Boston.

Trustee for four years—Dr. John M. Peters of Rhode Island Hospital, Providence.

ASSIGNMENT OF DR. GEORGE A. GRIEUMARD

Dr. Geo. A. Grieumard, 956 Main St., Fitchburg, Massachusetts, Major, Med-Res., has been ordered by the War Department to Carlisle Barracks, Penn., from the 15th of June to the 30th, 1925, for a course of instruction and training.

Major Geo. A. Grieumard was Commanding Officer of Hospital Train No. 48, overseas.

THE registrar-general has issued his corrected vital statistics for England and Wales for 1924. There were 730,286 births and 473,270 deaths. The natural increase of population by excess of births over deaths was therefore 257,016, the annual average increase in the preceding five years having been 335,352. The number of persons married during the year was 592,048. The marriage rate was 15.3 per thousand of population. The birth rate was 18.8 per thousand and the death rate 12.2. Infant mortality was 75 per thousand registered births. The birth rate was the lowest recorded except during 1917-1919; the death rate was 0.6 per thousand above the rate for 1923; the infant death rate was 6 per thousand births above the 1923 rate.—*Science.*

REPORTS AND NOTICES OF MEETINGS*

A PHYSIOLOGICAL CONFERENCE will be held Wednesday, May 27, in the Bowditch Library, Building C, Harvard Medical School, at 4 P. M. Dr. Walter B. Cannon will speak on "Some Tentative Postulates Regarding the Physiological Regulation of Normal States."

THE ANNUAL MEETING OF THE FRANKLIN DISTRICT MEDICAL SOCIETY

THIS meeting was held at the Weldon, Greenfield, on May 12, 1925.

Officers were elected as follows:

Pres., Dr. F. A. Millett, of Greenfield; Vice-Pres., Dr. P. F. Leary, of Turners Falls; Sec. and Treas., Dr. Chas. Moline of Sunderland.

It was the sense of the meeting that the stand taken by the Middlesex East District Society anent the administration of anaesthetics by nurses be endorsed by the Franklin District. After routine business Miss Koch of Greenfield reported briefly on Summer Camps as conducted in Greenfield and asked the support of the Society for this work.

Dr. F. A. Miller of Greenfield reported a case of osteomyelitis of frontal and ethmoidal region complicating an orbital cellulitis from a simple foreign body. The doctor stressed the fact that the site of the injury, following extraction of a foreign body from the eye, should be sterilized as far as possible.

After adjournment dinner was served in the hotel dining room.

CHAS MOLINE, *Sec.*

LAWRENCE GENERAL HOSPITAL

THE Clinical Staff Meeting was held Tuesday, May 12th, 8.30 p. m. Chairman, W. Dacre Walker, M.D.

Following the presentation of the Hospital cases a paper was presented by the Chairman upon the "Present Status of Vaccine and Serum Treatment of Scarlet Fever."

R. C. NORRIS, M.D., *Secretary.*

THE ESSEX COUNTY HEALTH ASSOCIATION

THE Essex County Health Association which is made up of the Associated Tuberculosis Leagues of Essex County held its annual meeting at the Essex County Sanitorium, at Middleton, Mass., on May 12, 1925.

The following officers were elected:

President—Dr. Olin S. Pettingill, Middleton.

Vice-President—Dr. I. J. Clarke, Haverhill.

Treasurer—J. Edwin Austin, Salem.

Executive Secretary—Miss A. Gertrude Hines, Boston.

Board of Directors—Mrs. Irving Southworth, Andover; Miss Helen Wales, Beverly; Mrs. Leonard M. Dresser, Georgetown; Dr. H. C. Burrill, Gloucester; Dr. Elmer S. Bagnall, Groveland; Mrs. T. Frank Waters, Ipswich; Mrs. E. Maud Page, Lynnfield; Mrs. Eva Hoyt, Merrimac; Mrs. A. E. Heald, Methuen; Mrs. Clara Bell, Danvers; Miss Alice Manning, Middleton; Mrs. Abbie May Roland, Nahant; Mr. H. W. Prichard, Newbury; Mr. Abbott Stevens, N. Andover; Mrs. Alexander Addison, Saugus; Mrs. T. Joseph McAuliffe, Swampscott; Mrs. Thomas H. Jenkins, Topsfield; Mrs. H. A. Thomas, Hamilton.

Directors at Large—Mrs. Edward Cole, Wenham; Mrs. Granville Allen, Lawrence; Miss Edith Howe, Newburyport; Dr. Olin S. Pettingill, Middleton; Dr. Walter Phippen, Salem; Mr. Frederick Butler, Lawrence; Mr. Josiah H. Gifford, Salem; Dr. William T. Hopkins, Lynn;

Notices of meetings must reach the JOURNAL office on the Friday preceding the date of issue in which they are to appear.

Dr. F. E. Schubmehl, Lynn; Mrs. Carolyn M. Engler, Lynn.

Executive Committee—Mrs. Leonard M. Dresser, Georgetown; Mrs. Carolyn M. Engler, Lynn; Mr. Josiah H. Gifford, Salem; Dr. Walter Phippen, Salem; Mr. Frederick Butler, Lawrence.

Following the election of officers a demonstration of the Health Crusade was presented by twelve children and the prize cup which they had won as the class having the best score of achievements throughout the state was exhibited. The association was then addressed by Dr. Edward O. Otis, the retiring president of the Massachusetts Tuberculosis League. Much interest was manifested in the summer camp for under-weight children, a continuance of which during the approaching summer is projected.

WM. T. HOPKINS, *Reporter.*

THE ESSEX SOUTH DISTRICT MEDICAL SOCIETY

THE annual meeting of the Essex South District Medical Society was held at the Tavern, Gloucester, Mass., on May 13, 1925, at 6.30 p. m. At the close of the dinner, the following officers were elected for the ensuing year:

President—Dr. J. F. Donaldson, Salem.

Vice-President—Dr. T. L. Jenkins, Topsfield.

Secretary—Dr. R. E. Stone, Beverly.

Treasurer—Dr. Andrew Nichols, 3rd, Danvers.

Librarian—Dr. C. M. Cobb, Lynn.

Commissioner of Trials—Dr. J. E. Simpson, Salem.

Council—Dr. W. T. Hopkins, Lynn; Dr. J. W. Trask, Lynn; Dr. R. E. Stone, Beverly; Dr. W. G. Phippen, Salem; Dr. A. N. Sargent, Salem; Dr. H. K. Foster, Peabody; Dr. J. F. Jordan, Peabody; Dr. P. P. Johnson, Beverly; Dr. G. M. Kline, Beverly; Dr. J. Armand Bedard, Lynn; Dr. F. W. Baldwin, Danvers.

Nominating Councilor—Dr. J. Armand Bedard, Lynn.

Alternate Nominating Councilor—Dr. W. T. Hopkins, Lynn.

Cesors—Dr. J. F. Jordan (Supervisor), Peabody; Dr. C. M. Wilson, Salem; Dr. C. L. Hoitt, Lynn; Dr. L. C. Swan, Beverly.

Executive Committee—Dr. D. S. Clark, Salem; Dr. P. P. Moore, Gloucester; Dr. G. Kirkpatrick, Lynn; Dr. C. H. Phillips, Beverly; Dr. A. E. Parkhurst, Beverly.

The report of the secretary was accepted.

The report of the treasurer was accepted after verification by the auditing committee. Following the business meeting the president presented as the guest of the evening Dr. Louis I. Harris, Director of the Division of Preventable Diseases of the Department of Health of the City of New York. Dr. Harris discussed the control of typhoid fever, tuberculosis, scarlet fever, diphtheria and smallpox. Attendance 72. Adjourned 10.15 p. m.

WM. T. HOPKINS *Reporter.*

MEETING OF THE AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS

The thirty-seventh annual meeting of the American Association of Genito-urinary Surgeons was held in Washington May 4 and 5. Dr. Arthur L. Chute of Boston presided. Dr. William F. Braasch of Rochester, Minn., was elected president for the coming year, and Dr. James A. Gardner of Buffalo, vice-president. Dr. Henry G. Bugbee of New York was reëlected secretary and treasurer.

Thirty-seven papers were scheduled, and all but three or four were read. A number of readers presented unusual cases.

From the papers dealing with more general subjects several original ideals evolved. Dr. Caulk of St. Louis, writing of the punch operation in prostatic obstruction, referred to his observation that, following the removal of relatively small bits of tissue, the entire prostate had decreased in size. This effect he attributed to the subsidence of the inflammatory condition of the gland brought about by drainage through the incised tissue.

Dr. Arthur Paine of Rochester, N. Y., suggested that undilatable strictures of the urethra be relieved by dissecting off the urethra the fibrous zone which constricts it, without opening the canal itself.

In "A New Method for Treatment of Bladder Tumors," Drs. Cunningham and Graves of Boston described a way of determining the extent to which the underlying tissues were heated by diathermy. This was accomplished through the use of thermal junctions contained in needles when employed in the tissues, or in rubber plugs when used in the rectum or vagina. They also described a screw-shaped electrode used in applying diathermy to the tumor.

The symposium on intravenous therapy was opened by a paper by Drs. Hugh Young and J. A. C. Colston of Baltimore on mercurochrome, quoting many successfully treated cases of renal and perirenal infections. Drs. Braasch and Bumpus of the Mayo Clinic reported their experiences with the drug. They found it of value in acute infections of the urinary tract, acute arthritis and acute skin infections. In chronic cases its use proved ineffectual. Mercurochrome should be employed conservatively, and only in hospitalized patients. They referred to the intravenous use of Fischer's Solution in cases of uremia due to obstruction in the lower urinary tract.

Drs. Veader Leonard and Martin Frobisher of Baltimore gave an exceedingly interesting paper on the significance of surface tension in urinary antisepsis. Lowering the surface tension of urine increases its bactericidal effect; hexylresorcinol lowers the surface tension of urine, and to this action may be due its value as a urinary antiseptic.

In the discussion which followed these papers several men reported their experiences with fairly large numbers of cases treated with this new drug. Their results were not at all encouraging. Dr. Leonard pointed out the necessity of keeping such cases on large doses of hexylresorcinol for from 60 to 90 days.

Dr. Hugh Cabot described an incision employed by him in operating upon large renal tumors. This incision extends from the tip of the twelfth rib to a point just above the umbilicus, then upwards along the median line. It does not divide any important nerves, and thereby avoids leaving a paralyzed rectus, while giving a good exposure.

SOCIETY MEETINGS

NEW ENGLAND STATE MEDICAL SOCIETIES

The annual meetings of the New England State Medical Societies are scheduled as follows:

Connecticut State Medical Society—Bridgeport, May 20-21, 1925.
Maine Medical Association—Bar Harbor, June 23-25, 1925.
Massachusetts Medical Society—Boston, June 9-10, 1925.
New Hampshire Medical Society—Manchester, May 19-20, 1925.
Rhode Island Medical Society—Providence, June 4, 1925.
Vermont State Medical Society—St. Johnsbury, Oct. 15-16, 1925.

BOOK REVIEWS

The Nature of Disease. By J. E. R. McDONAGH, F. R. C. S., Surgeon, London Lock Hospitals, Late Hunterian Professor, Royal College of Surgeons. Published by Wm. Heinemann, 20 Bedford St., London, W. C. 2.

This is a very handsome volume, nicely bound in blue buckram, with gold letters on the back. It is profusely illustrated with half-tones on an excellent grade of calendered paper. Many of the half-tones are in color. The publishers have done their work well.

J. E. R. McDonagh, F. R. C. S., a surgeon to the London Lock Hospitals and late Hunterian Professor, Royal College of Surgeons;—at this distance one is impressed by the significance of the author's titles. There seems to be a growing tendency on the part of eminent, somewhat elderly surgeons, to soar in realms of fancy. Examples may be found even on this side of the Atlantic. One wonders why it should be the surgeon rather than the physician or the laboratory man who takes there tangential flights into space. The answer can only come from the psychologist, perhaps the psychiatrist, but to the humble reviewer it would seem almost as if long suppressed yearnings to utilize progress in physical science had burst the bounds created by routine empiricism and mechanical performance. The author's ideas are revealed in the introduction. Absolute accuracy in transmitting these ideas is not perhaps of great importance considering the nature of the ideas, and it is really not worth the time necessary for a thorough analysis of the book. The fundamental idea is that all body fluids and substances contain either positively or negatively charged proteins. Those which are negatively charged he calls conductors and those positively charged condensors. The reactions then which these undergo are compared with oxidation and reduction, i. e., a conductor reaction is an oxidizing reaction, a condensor reaction is a reduction. Substances then affect the body substances by changing or robbing the proteins of their electrical charges, in this way causing disease. His basis for treatment then is to restore a normal electrical equilibrium in the body. Drugs are divided into three main classes, "conductors of electricity, condensers of electricity, and ions." This gives you the main idea of the book. It is fully as scientific as Abrams electronic bunk and one wonders if Dr. Abrams hasn't furnished some of the ideas utilized in the present work.

As a further evidence of the extraordinary nature of the work, there is a chapter on the life cycle of the micro-organism of syphilis (Leucocytozoon syphilidis), the underlying idea of which is that the Spirochaeta pallida (author's nomenclature) is "the adult male phase of a coccidial protozoon, and that the spore which results from the conjugation of the two sexual phases is the actual cause of syphilis." One wonders that such an eminent investigator and protozoologist should have found time to have written another book called Venereal Diseases, Their Clinical Aspect and Treatment.

However, this is enough. The reviewer does not intend to review the book any further. The wastefulness of such a publication seems sinful. The reviewer hopes that nobody will buy the book. He marvels at the willingness of a firm to publish such a work, and cannot help but speculate as to the financial responsibilities assumed by the author in its publication.

Child Marriages. By MARY E. RICHMOND and FRED S. HALL. New York: Russell Sage Foundation, 1925.

THE authors have collected a surprising amount of data on the subject of child marriages. They find that the state laws vary widely in regard to marriageable age, parental consent and proof of age. In 14 states it is possible for girls to marry at an earlier age than that at which they are permitted to become wage-earners. The authors make many constructive criticisms of the facts which they have so carefully gathered. The book is a clear, concise and excellent presentation of the subject. Great credit should go to the Russell Sage Foundation for stimulating both the research and the publication of these important monographs on special subjects.

Practical Anaesthetics. By H. EDMUND G. BOYLE AND C. LANGTON HEWER. Oxford Medical Publications.

A brief book on anaesthetics for the general practitioner and the student.

The authors of this book have covered the essentials of anaesthesia and combined a happy faculty of writing interestingly with the discussion of only the practical essentials. Enough of the theory of anaesthesia is given without including unnecessary detail. One chapter is devoted to local and spinal anaesthesia.

With the exception of chapter ix on "Ethanesal," this book can not be too highly recommended.